THE LANCET.

No. 4220. Vol. CLXVII. LONDON, SATURDAY, JULY 16, 1904. [Pp. 120+40.

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The Croonian Lectures

ON

BRIGHT'S DISEASE AND ITS VARIETIES.

Delivered before the Royal College of Physicians of London on June 7th, 9th, 14th, and 16th, 1904.

BY JOHN ROSE BRADFORD, M.D., D.Sc. LOND., F.R.S.,

FELLOW OF THE COLLEGE; PROFESSOR OF THE PRINCIPLES AND PRACTICE OF MEDICINE, UNIVERSITY COLLEGE; PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL, LONDON.

LECTURE I.

Delivered on June 7th.

PHYSIOLOGICAL CONSIDERATIONS.

MR. PRESIDENT AND GENTLEMEN,—My first duty is to tender to you, Sir, and to the College my best thanks for the honour you have conferred on me in requesting me to deliver these lectures although I have many misgivings as to my capacity to deal adequately with the subject. The subject of Bright's disease is not only one peculiarly associated with English medicine and more especially with the names of Bright, Wilks, Roberts, Grainger Stewart, and many others, but it is also such a prevalent malady that I feel no apology is necessary for bringing it before you. Further, at the present time there is a great deal of confusion not only as to the fundamental problems connected with this disease, such as, for instance, its etiology, but also there is much diversity of opinion amongst different writers as to what renal affections should be included under the term Bright's disease.

The problem of the causation of disease is usually a far more complex one than the mere description of a malady. The fact that such widely differing conditions as amyloid degeneration, so-called chronic nephritis, granular kidney, and even such an affection as the cystic kidney, should all be described by some under the term Bright's disease is an index of the confusion that exists at the present time in this department of medicine. This confusion is so well recognised by some that the term Bright's disease is no longer applied by them to a definite anatomical condition but is used much in the same way as the term diabetes is employed, or will be shortly—that is to say, as a symptom-complex or as the name connoting a number of symptoms or a certain clinical picture rather than a single morbid entity. Other writers consider the term Bright's disease and nephritis as interchangeable and talk of Bright's disease as chronic nephritis in one or another of its various forms. The number of affections of the kidney which may be included under the terms nephritis and Bright's disease is, however, so considerable that nothing is gained by including them all under one term either of nephritis or of Bright's disease. This is more especially true, not only on account of the mere number and variety of the different lesions, but also because they really differ very considerably in their clinical course and possibly in their etiology. Quite apart from considerations of sentiment or those which usually influence nomenclature in other branches of knowledge—viz., the priority of a given name—there are, in my opinion, sound reasons for maintaining the term Bright's disease. At the same time the group of cases to which this term is applicable is a definitely limited one, characterised not merely by morbid anatomy but more especially by the clinical symptoms and course of the affection.

Bright's disease is usually looked upon as an affection of the kidneys, although perhaps it may be considered doubtful whether the lesion is one really limited to these organs. It has been rather too readily assumed that all the multifarious effects of Bright's disease on the circulation, such as the occurrence of dropsy and the presence of marked cardio-vascular lesions such as cardiac hypertrophy and the well-known changes in the arteries, are entirely to be explained as effects produced secondarily by an initial renal lesion. To express it more accurately, the view has been held that these effects are solely dependent on the disordered function of the kidneys. This view has not only been held with regard to what may be called the vascular accompaniments of certain renal diseases but also with reference to the nervous phenomena so common in Bright's disease. Although the details as to the nature of uræmia are not clearly understood nearly all writers on the subject consider the condition a toxic one and they associate the toxic state solely with the deficient excretory activity of the kidney. Thus it comes about that the widespread effects which we associate with Bright's disease, and especially with chronic Bright's disease, such as the dropsy, the cardio-vascular changes with all the evils that follow in their train, the uræmia, not to mention the various secondary and inflammatory lesions, are one and all regarded as dependent solely on the disturbance of the excretory function of the kidneys. This is unquestionably one of the problems lying at the root of the pathology of Bright's disease and no doubt in a certain sense all these effects are due to the renal lesion, or perhaps it would be better to say are associated with some variety of renal lesion. But it is perhaps doubtful whether in the present state of our knowledge we are justified in looking upon all these widespread effects as a result of a cause or causes acting entirely on, and producing results only in, the kidneys.

A great many of the difficulties that have arisen in interpreting the phenomena of Bright's disease and other affections of the kidney have been due to a want of complete accord between the known facts as to the physiology of the kidneys and certain phenomena observed in disease of these organs. This has been especially the case in many of the discussions that have taken place with regard to the nature of uræmia. The same difficulties have also presented themselves in connexion with other phenomena of renal disease such as renal dropsy and the very extensive cardio-vascular changes seen in many kidney diseases. Throughout the domain of pathology it may be said that our knowledge of the nature of disease varies directly with the extent of our knowledge of the physiology of the organs concerned. Doubtless a great deal of harm is done to the progress of medicine by the immediate transference of physiological discoveries to that part of applied biology which is known as medicine. All the same advances are made through the intermediation of pathology. In some instances the first gleams of our knowledge of the physiology of certain organs have been derived from the study of clinical medicine but it is only when these have been extended and more accurately determined in the physiological laboratory and later by pathology that the full benefit to clinical medicine has been obtained. A striking instance of this interdependence of the three branches of knowledge, physiology, pathology, and medicine, is afforded by the history of our knowledge of the functions of the cerebral cortex. Our first knowledge of localisation was obtained by the masterly clinical studies of Hughlings Jackson. The work of the physiologist added that definiteness which after all can only be obtained by the experimental method and at the present time the more or less minute and accurate knowledge that we possess of the functions of the cerebral cortex is at any rate very largely due to the work of the pure physiologist. The history of these discoveries, however, shows amongst other things the very great results that can be obtained from the study of medicine by the clinician with the aid of truly scientific methods.

Addison's disease may be quoted as an example of a malady where almost the whole of our knowledge is derived from the study of pathology and the unsatisfactory state of our knowledge as regards the nature of this disease may perhaps be said to be largely dependent on the want of full knowledge of the physiology of the suprarenals. The great discovery of the internal secretion of these organs elucidates, no doubt, part of the pathology of Addison's disease, but a part only, and until the physiology of the cortex of the organ is ascertained or possibly some hitherto unknown other function our knowledge of the pathology of Addison's disease will remain incomplete. Many other illustrations of the mutual interdependence of physiology, pathology, and medicine might be quoted but probably all will agree that where our knowledge of the physiology of an organ is scanty there also our conceptions of the diseases affecting the structure are vague and uncertain, and it is owing to the numerous instances of this in medicine that so many look upon medicine as not a truly scientific study; that, however, depends not on the subject but on the bent and training of mind of those who pursue it.

In the case of renal diseases, and more especially perhaps in Bright's disease, as stated above, many of our uncertainties as to the interpretation of the phenomena seen in the course of disease depend very largely on some of the

uncertainties as to the physiology of these organs, and therefore it will be convenient in this lecture to state shortly the present views with regard to the physiology of the kidneys and more especially to direct attention to those points which are of immediate interest and importance in relation to medicine and to consider in the subsequent lectures some of the problems of nephritis and of Bright's disease. Glands were formerly classified as excretory and secretory according as they removed substances from the body which were no longer capable of fulfilling any useful purpose or as they elaborated materials from the blood brought to them, these substances being subsequently made use of as in the digestive juice, bile, &c. At the present time a further, and from some points of view a more important, division has been made according to whether the material elaborated by the gland is thrown back into the blood stream or not, and we talk of internal and external secretions. Some glands are known to possess only internal secretions, or perhaps a more accurate way of stating it would be that they are known not to possess an external secretion, as, after all, it is doubtful whether such glands as the thyroid, the suprarenal, and the pituitary body possess no other function than that of elaborating the particular internal secretion that is associated with them. Other glands, such as the liver and the sexual glands, possess both an external and an internal secretion. In others, such as the pancreas, there is a considerable mass of evidence in favour of the existence of an internal secretion, although the actual product has not been determined with the definiteness that has been obtained in the case of the liver, the thyroid, and the suprarenal. In others, such as the salivary glands, there would seem at the present time to be no evidence in favour of the existence of any but an external secretion. Whether we are to look upon the kidney simply as a gland with an external secretion or as one with both an external and an internal secretion is perhaps at present not certain. Not only is there this uncertainty but even in its purely excretory function there are considerable differences of opinion amongst writers as to whether it is a pure excretory gland—in other words, simply removing materials from the blood stream—or whether in addition to this it is a secretory gland—in other words, elaborating by the activity of its own protoplasm some of the materials which are voided in the urine. It might, perhaps, be more satisfactory to divide glands, or at any rate gland functions, into the excretory and the secretory and to subdivide the latter further into internal and external—that is to say, to recognise that the excreting gland simply removes substances brought to it in the blood stream and passes them to the exterior. A secretory gland, on the other hand, elaborates substances which may leave the gland through the duct and so pass to the exterior after having performed some further function on the way, as in the case of the digestive juices, or else the substance is necessary for the metabolism of the body and leaves the gland through the lymphatics, as in the case of the thyroid, or through the veins, as in the case of the suprarenal and the liver.

If we now turn to the kidney and look at it simply from the point of view of a gland we are almost immediately face to face with difficulties as to how its functions should be classified. Many of the constituents of the urine are to be looked upon simply as products of a true excretory activity—in other words, the materials are simply picked up by the renal protoplasm from the blood stream. This is notably the case, for instance, with the water, the urea, and such a substance as sugar which is present in the urine normally in traces. It may also very possibly be true that many of the salts in the urine are purely excretory products. Other substances, however, of which the best-known instance is hippuric acid, are undoubtedly elaborated in part, at any rate, by the renal epithelium and therefore are not purely excretory products and the view has been actually advanced by some that the uric acid present in the urine in the form of urates is really the product of the secretory rather than of the excretory activity of the kidney. Such a statement as this will show the uncertainty of our knowledge with reference even to the simple excretory or external secretory activity of the kidney. From the point of view of pathology and of medicine it is obvious that it is important to determine accurately whether the urine is to be looked upon simply as a product of a purely excretory activity or whether it is really in part secretory and this quite apart from the more fundamental and still more important question as to the existence or non-existence of an internal renal secretion.

EXCRETORY ACTIVITY OF THE KIDNEY.

The elimination of water by the kidney may be looked upon as an example of its excretory activity and the quantity excreted in disease is often a matter of considerable importance in diagnosis and it may be instructive, therefore, to consider shortly the various factors influencing the amount. In health the quantity of water secreted by the kidney is determined first of all by the amount lost by other channels, the skin, the lungs, and the bowel. The amount of water retained in the body temporarily in the various tissues probably does not vary much in health but in disease this factor becomes of great and sometimes of overwhelming importance. The inverse relationship existing between the amount of urine excreted and the quantity retained in the tissues is well recognised, although in many conditions and perhaps especially in Bright's disease there may be a tendency sometimes to confuse cause with effect. Thus the diminution in the quantity of urine often seen at the onset of dropsy may not always really be the cause of the dropsy but rather the effect. Similarly the great increase in the urinary excretion seen with the subsidence of dropsy may also perhaps be the result rather than the cause. It will be convenient to discuss this more fully after the consideration of the more strictly physiological factors influencing the urinary flow. Water is lost from the skin, from the lungs, and from the bowel in addition to that eliminated by the kidneys and in normal circumstances some 50 per cent. of the quantity ingested is eliminated in the urine. The diminution in the urinary flow that follows excessive loss from the bowel or even from the lungs, as, for instance, in cases of rapid respiration associated with pyrexia, may probably be accounted for simply on physical grounds by the mere loss of a certain amount of fluid by other channels. The relation existing between the elimination of water by the skin and by the kidneys is probably of a more complex nature, although its mechanism at the present time is not understood. It would seem that there must be some correlation between the functions of the excretion of water by the skin and by the kidneys and it is remarkable that the excretory mechanism of the skin is under the direct control of the nervous system, the nerves controlling the activity of the sweat glands being very fully developed and having a direct action on the mechanism of secretion quite apart from that exerted by the vaso-motor nerves on the blood-vessels of the skin. In the case of the kidney no experimental evidence of a conclusive character has yet been advanced in favour of the existence of nerves controlling the excretion except in an indirect fashion by the influence exerted on the blood-vessels of the organ through the vaso-motor nerves. It is not only that the facts of physiology are in favour of some relationship between the activity of the sweat glands and that of the kidneys, but in disease of the kidneys dryness of the skin is often a marked feature and every physician knows the difficulty of bringing about sweating by ordinary means in many instances of renal disease. This and other facts undoubtedly suggest that there is some intimate relationship between these two structures and such relationship must either be brought about through the nervous system or by means of some chemical agent circulating in the blood stream. Although the vascular mechanism of the kidney and its nervous control is very highly developed yet at the present time there is no definite evidence showing that cutaneous stimulation is capable of directly influencing renal excretion or at any rate of influencing it to a greater degree than that produced by stimulation of other afferent nerves. Modern discoveries have shown that some apparent reflex acts, as, for instance, the secretion of pancreatic juice, are really dependent on chemical agents however great the superficial resemblance to a nervous reflex may be and it is possible that future experiment may show similar chemical mechanisms in the case of the renal excretion; at the present time there is no evidence as to this.

Putting aside the loss of water from other channels there are many other factors which influence the flow of urinary water. In the first place all the substances that are excreted by the kidney normally, such as urea, urinary salts, &c., so act upon the kidney as to lead to the prompt excretion of water, thereby insuring their own passage down the renal tubules. This in itself is a remarkable mechanism when we consider that many of the substances, as, for instance, urea, are excreted by the renal epithelium, whereas the water is eliminated by the glomerulus which is so to say on the proximal side of the active tubule epithelium. Most of the

constituents of the normal urine may be looked upon to a certain extent as diuretics and this is shown by the vascular dilatation that the injection of these substances produces in the kidney. Many substances having a diuretic action only have this action in initial doses and caffeine, which is allied to the xanthin bases normally present in the urine, is a striking instance of this, inasmuch as the well-marked diuretic effect produced by this drug is in fact only seen in small doses and in initial doses. A small dose of caffeine injected into the circulation of an animal produces a very notable expansion in the kidney from vascular dilatation together with marked increase of the urinary flow. A repetition of the injection is followed probably by a smaller effect of the same character. A third injection will produce a renal constriction accompanied by a diminished flow, and very possibly a fourth injection will cause not only a much more marked constriction but may even lead to complete arrest of the renal excretion. It is certainly remarkable that a substance of such marked diuretic action as caffeine should in large doses, or as a result of repeated small doses, produce diametrically the opposite effect.

A second factor affecting the quantity of urinary water excreted is the state of the circulation in the kidney and it is well known that there is no other gland in the body in which there is such a close relationship between the degree of excretory activity and the state of the circulation. The renal filter, however, is not a simple filter inasmuch as the quantity of urine excreted is not dependent directly on the blood pressure but on the rate of flow of blood through the kidney. This has been conclusively shown by a very large number of experiments on the vaso-motor system. The vascular mechanism of the kidney and its nervous regulation are both of them of an extraordinarily delicate character. The kidney is supplied by vaso-motor nerves from the greater part of the dorsal cord and also from the upper lumbar nerves, so that the vaso-motor supply of the organ, considering its size, is very great. So much so is this the case that the kidney may be looked upon almost as a mass of blood-vessels and alterations in these may be quite sufficient to affect the blood pressure quite apart from the effects produced on the glandular activity of the organ.

The circulation in the kidney is profoundly affected by all the reflex mechanisms influencing the vaso-motor system. The stimulation of afferent nerves produces, as is well known, marked effects on the general blood pressure of the organism and the kidney vessels take a part, and often a large part, in all these reflex mechanisms. There is scarcely a single afferent nerve the excitation of which will not produce effects on the blood pressure and so on the kidney etc. thus indirectly on the urinary flow. The excitation of the central end of most afferent nerves produces, as is well known, a rise of blood pressure dependent on the constriction of visceral blood-vessels and amongst others of the kidney. There are certain nerves like the central end of the depressor excitation of which causes a fall of blood pressure owing to vascular dilatation. It is interesting to observe that the volume of the kidney shrinks when the central end of a depressor nerve is excited, showing that the dilatation produced in other vascular areas overpowers that of the renal vessels and so passively drains them. I pointed out in my Goulstonian lectures, delivered before the College in 1896, that the excitation of the central end of certain of the lower dorsal and upper lumbar posterior roots produces reflexly great engorgement of the kidney owing to the renal vessels undergoing dilatation and the vessels of other abdominal areas undergoing constriction. It is sufficient from our present point of view to draw attention to the very profound changes that must occur in the urinary flow as a result of the activity of the vaso-motor system and the changes produced by reflex excitation.

The quantity of urine may also be affected by the direct action on the kidney of products circulating in the blood stream and produced by the activity of other glands. The best known instances of this are afforded by the suprarenal, the thyroid, and the pituitary glands. The suprarenal extract causes, as is well known, marked constriction of the blood-vessels, whereas the thyroid and pituitary extracts, and especially the latter, produce dilatation. Thus on the one hand the material elaborated by the suprarenal will tend to diminish the flow of urine and that produced by the pituitary will have a direct diuretic effect. These observations, for which we are indebted to Schäfer and other workers in his laboratory, show in an interesting manner how a relationship between different structures in the body may be brought about by chemical rather than by nervous agents, and this also may perhaps suggest, as mentioned above, that there may be a chemical relationship between the skin and the kidney.

Another factor that influences to a marked degree the quantity of urinary water, although the mode in which this influence is exerted is not clear, is the amount of renal substance. It is rather remarkable that the kidneys of the mammalia which excrete more water than the animals of other classes of vertebrates should present as their most marked characteristic a high development of the renal tubules when we consider that the water is really eliminated by the glomerular activity. The kidneys of fishes, reptiles, and birds have a well-developed glomerular mechanism but the tubules are not developed to the extent seen in the mammalia. The consideration of the differences in the structure of the kidney in different classes of vertebrates no doubt led to the view that possibly considerable quantities of water were reabsorbed during the passage of the urine down the uriniferous tubules and we might explain in this way, perhaps, the fact that substances excreted by the tubules, such as caffeine, urea, and other diuretics, prevented this reabsorption of water and hence provided for their own excretion. Many writers have supposed that this reabsorption of water took place, especially in the medullary portion of the kidney, but the reabsorption of water by the renal tubules, whether cortical or medullary, cannot be said at the present day to be proved, although some experimentalists have gone so far as to assert that after the extensive removal of portions of the medulla the urine secreted by the damaged kidney is more copious and dilute than normal. It can, however, be shown that all removals of the renal substance are followed by an increase in the quantity of urine excreted with a corresponding diminution in its specific gravity and that this effect is not dependent purely on the removal of the medulla. The mode of production and the cause of this increase are very obscure, since although it is correlated with the removal of portions of the kidney yet it is not seen after the removal of one entire organ. It is difficult to attribute it simply and solely to the mere removal of a certain amount of kidney substance. On the other hand, it is not seen as a result of mere incision with subsequent suture of the kidney, however extensively the kidney may have been incised. When a portion of one kidney only is removed the increased flow of urine is merely temporary but if in addition to this the sound organ be removed, leaving the animal with but a portion of one kidney of greater or less amount, the increase is permanent and the quantity of urinary water may increase in amount from two to four times the normal quantity. It is possible that the increased flow is associated with some reflex effect produced on the vascular system and, as is well known, Cohnheim suggested that the high tension so often seen in certain destructive diseases of the kidney was produced in a more or less reflex manner through the vaso-motor system. No obvious cardiac or vascular hypertrophy, however, can be observed in the case of the nephrectomised animals even after as long a period as 18 months, and this is in marked contrast to the rapid development of cardiac hypertrophy in certain renal diseases. We see therefore that the quantity of renal substance available does materially affect the quantity of urine excreted in such a manner that where but one-third or a quarter of the total kidney weight remains available the urinary flow is greatly increased. The mode in which the increase is brought about must be left for future observation. The results of physiological experiments are, however, in harmony with the phenomena of pathology as the number of renal diseases in which the quantity of urine is notably increased together with extensive destruction of the kidney substance is very considerable.

There has been a great tendency to attribute the increased flow of urinary water so often seen in chronic renal disease to associated cardio-vascular lesions, especially to cardiac hypertrophy. This view has been advanced and substantiated mainly on account of the characteristic dilute and copious urine secreted in cases of granular kidney accompanied by widespread arterial changes and it is possible that in this disease the increased flow is really directly correlated to the increased tension. Advanced renal disease is, however, often seen without the associated high tension dependent on cardio-vascular changes and here also a copious and dilute urine may be secreted. This is notably the case in albuminoid kidney, in some forms of hydronephrosis partial in character, and not uncommonly of congenital origin and characterised

by very great and extensive destruction of the renal substance. Further, this dilute urine is a very characteristic feature in general cystic disease, and although cardiac hypertrophy may occur with this lesion it is not by any means an invariable accompaniment. In amyloid kidney doubtless the increased flow might be attributed to the changes in the vessels, but in the other instances quoted it seems not unfair to associate the dilute urine directly with the renal lesion. There are also instances of contracted white kidney where the organs may be extremely small and the cortex greatly diminished in amount and yet where, strange to say, cardio-vascular lesions may either be absent or but ill-developed and the patient shows no marked signs of high tension or of cardiac hypertrophy, but here also the flow of urine may be notably increased in amount. Paradoxical as it may seem at first sight, it might almost be asserted that renal disease, especially in its more severe forms, tends rather to increase than to diminish the flow of urine and that in the instances where the flow is diminished this diminution is really dependent on associated conditions, such as the acute congestion of some forms of acute nephritis, the passive congestion of heart disease, the increased loss of water by other channels, or the onset of dropsy. It is a matter of some clinical importance that an increased flow of urinary water is to be taken rather as a sign of inefficiency or even of very profound disease of the kidney substance, and personally I am inclined to hold the view that the diminution in renal excretion is to be attributed mainly to associated phenomena rather than to the direct changes in the kidney substance.

Suppression of urine is necessarily excluded from this summary. The mode of production of this condition is also obscure, but several distinct varieties may be recognised. In some instances it is directly caused by the severity of the lesions, and this is especially true in the case of vascular lesions. Thus, very acute congestion or inflammation, thrombosis of the renal artery or of the vein, and even embolism may so profoundly affect the circulation of the organ as to bring about complete suppression. In other instances, as in diphtheria, the suppression would seem to be dependent on the action of some toxic substances acting directly on the cells rather than on the vessels. Certain other poisons produce suppression owing to the extreme vascular congestion produced—e.g., scarlet fever, cantharides, &c. In diphtheria the flow of urine may be completely arrested and yet the kidney does not present post mortem those marked characteristics of vascular engorgement seen in scarlet fever. The most remarkable forms of suppression are those associated either with obstruction of the ureters by calculi or else those associated with reflex irritation of the lower urinary tract or even of some distant part of the body. At least these four varieties of anuria may be recognised. In some of them, as just mentioned, the phenomena can be attributed solely to the circulatory disturbance produced and in others it is possible to assume that the physiological activities of the cells may be destroyed by the action of some toxic substance. Even in the case of the glomerular epithelium we must assume that the cells forming it have some special selective action, for otherwise it is not obvious why the mere passage of the blood through the glomerular tuft should be followed by the elimination of water.

The mechanism of production of what may be called the reflex varieties of anuria is obscure and resembles that sometimes seen in the laboratory, where it is not uncommon to find that after the insertion of a cannula in the ureter there is no flow of urine and yet a flow suddenly becomes established without any very great change in the vascular condition of the kidney or at any rate no change greater than a slight dilatation. All physiologists who have worked on the kidney must have been struck with the great ease with which the excretory activity of the organ may be diminished or even suppressed without any correspondingly marked changes in its vascular condition and yet no one has obtained any evidence of the existence of nerves capable of affecting either directly or reflexly the flow of urine other than the well-known puncture experiment in the medulla which may be followed by an increased excretion. The physiological results are, however, to a certain extent vitiated by the fact that in such experiments anæsthetics have been employed. There is therefore again a complete parallel between the experimental results and those seen in disease, inasmuch as in both conditions we meet with instances of complete suppression of the urinary secretion unaccompanied by any gross or marked lesions in the kidney.

Important as the excretion of water is both to the organism and also from the point of view of clinical medicine the excretion of the solid constituents of the urine is of still greater importance. The numerous substances excreted in the urine may be said to be derived from one of three sources. First, they are to a great extent derived directly from the food and their presence in the urine may be looked upon, so to say, as a mere result of excessive ingestion. They may be also derived somewhat indirectly from the food as a result of the changes undergone in the metabolism of the food. Secondly, some of the urinary constituents have what may be called an intestinal origin—that is to say, they are not merely products of the decomposition of the food in the bowel but they may consist of substances which are passed into the intestine from the organism and which, instead of being excreted by the bowel, are again reabsorbed to be excreted in the urine. This is a very remarkable mechanism and shows the curious inter-relationships that may exist between different organs with different functions in the body. One of the pigments found in the urine—viz., urobilin—is an instance of this, inasmuch as this substance is formed in the bowel from the bile pigments and some of it, at any rate, is reabsorbed and excreted in the urine. The well-known aromatic sulphates and such substances as indican are also illustrations of this. According to some authorities all the oxalates found in the urine are to be regarded as derived entirely from the interior of the stomach or bowel. It is certainly of interest and sometimes of importance to remember that some of the constituents of the urine are substances which have already been passed to the exterior of the body in the form of the alimentary canal to be subsequently reabsorbed and excreted in the urine. Thirdly, the constituents of the urine are true metabolic products derived from the activity of the tissues, but even such substances as urea and uric acid, which may be taken as typical representatives of this class, have in reality at least a double origin, a portion of them being probably derived from the metabolism of the true tissue elements and another and a larger portion perhaps from the metabolism of the food without the latter ever having become incorporated in the tissues.

One of the principal questions in relation to the excretion of the products of the metabolism of the tissues is whether these are simply picked out from the blood stream by the renal epithelium or not. In the case of urea, the most important of these products, the evidence is complete that the kidney simply acts as an excretory organ although in performing this function it manifests a marvellous selective action inasmuch as there is approximately five times as much sugar in the blood per cent. as there is urea, and yet the urine contains one hundred times as great an amount of urea per cent. as the blood brought to the kidney and yet at the same time the urine only contains traces of sugar—quantities far less than those in the blood stream. There is no conclusive evidence that any of the normal constituents of the urine are really either in part or wholly elaborated by the activity of the renal protoplasm. It has been suggested that uric acid is formed by the kidney. This view has been advanced mainly on account of two reasons: in the first place, in those animals where uric acid is an abundant constituent of the urine considerable quantities of urea are found in the blood; and secondly, it is difficult to demonstrate the presence of uric acid in any quantity in the normal blood stream. In the case of birds, however, notwithstanding the presence of urea in the blood, the evidence would seem to be conclusive that the uric acid is really formed by the liver. Removal of the liver in birds is followed by the diminution, or even the disappearance, of uric acid from the urine and, on the other hand, the ligature of the ureters and, what is perhaps more conclusive, destruction of the kidney by the injection of bichromate of potash is followed by the accumulation of uric acid in the blood and even by its deposition in the form of urates in various organs and cavities of the body, as, for instance, the liver on the one hand and the pericardium on the other.

The disappearance of uric acid from the urine after extirpation of the liver might, of course, be due to the urea no longer being formed in the liver and is not conclusive evidence of the formation of uric acid in that organ, but Ebbstein's results showing the accumulation of uric acid and its deposition after destruction of the renal cells with bichromate of potash would seem to negative the idea that this substance is formed in the kidney. Doubtless further experiments are required in this direction and more especially, perhaps, observations on the results following double nephrectomy

in birds. It would not seem to be probable that a function which is discharged by the liver in one set of vertebrates, such as birds, would be discharged by another organ, such as the kidney, in another set of vertebrates, such as mammals, and therefore it is improbable that the kidney is the seat of the formation of uric acid in mammals and in man. Another reason, doubtless, that has led to the hypothesis of the formation of uric acid in the kidney is the fact that a somewhat allied body—hippuric acid—may unquestionably be formed, thanks to the activity of the renal protoplasm, so that it cannot be denied that apart from the true excretory function of the kidney this organ is capable of affecting syntheses, such as the union of benzoic acid with glycin. This action of the renal cells is, however, not limited to them and may also be effected by the protoplasm of other cells—e.g., the liver. It will thus be seen that there is really but little, if any, evidence in favour of the view of the kidney having a special secretory activity, although perhaps it would be unwise to deny the possibility of it. Many substances taken into the body, as, for instance, certain drugs like chloral and carbolic acid, are excreted in the urine in combination with complex acids like glycuronic acid and sulphuric acid. But there is no evidence that this union or conjugation takes place in the organ itself.

Another problem in relation to the physiology of the kidney which has a most important bearing on the pathology is the question as to whether the kidney is provided with an internal secretion, and the most divergent views have been held with regard to this. It may be said that the conception that the organ has an internal secretion has been derived primarily from certain phenomena observed in disease and more especially from the supposed difference in the clinical picture seen in cases of extensive disease of the kidneys on the one hand and that seen on the other hand as a result of calculous obstruction. The profound differences between the phenomena of acute uræmia as seen in the case of scarlatinal nephritis and the latent uræmia accompanying calculous obstruction are so great that it is not surprising that many observers have thought that the explanation of these differences is to be found in the hypothesis of an internal renal secretion. In the scarlatinal nephritis or other destructive disease of the kidneys both of the supposed functions of the organ would be arrested, whereas in calculous or other forms of obstruction only the external secretion or excretion. This doubtless might be a ready and simple explanation of the supposed facts. Additional evidence in support of the same view was supposed to be afforded by the earlier experiments of the results following double nephrectomy on the one hand or ligature of both ureters on the other in animals. Speaking broadly, the effects of double nephrectomy were more violent and more rapid in their course than those seen after ligature of both ureters and it was supposed that owing to the severity of the vomiting in the first group of cases there was a greater resemblance to uræmia as seen in the human subject.

The question of the existence or non-existence of an internal secretion is one that must be determined solely by physiological methods and before its existence can be admitted the same kind of evidence must be available in the case of the kidney as in the case of other glands. This evidence may be said to consist usually of three parts. In the first place a gland that is provided with an internal secretion usually presents distinct histological evidence in support of the existence of this function. Thus in the case of the thyroid not only can the colloid material actually be seen passing off in the lymphatic of the organ but in addition the groups of cells forming the well-known parathyroid tissue are found imbedded in the substance of the gland. In the case of the pancreas certain definite structures known as the islands of Langerhans are found in the substance of the gland, although it must be admitted in the light of Dale's observations that possibly the connexion of these cells with the internal secretion of the organ is not so direct as has been supposed. In the case of the liver, although there may not be histological evidence in the ordinary sense of the word, yet the staining of the organ reveals the presence of glycogen in its substance. In the second place, where an internal secretion is unquestionably present the results of removal of the gland in question are different from those seen from the mere ligature of its duct where the gland is one provided with a duct. This is notably the case with the liver, the pancreas, and the testis. In all these three instances there is no sort of resemblance between the phenomena produced by ligature of the duct and those produced by extirpation of the organ. In the third place an extract can usually be obtained from glands possessing an internal secretion which frequently contains certain definite chemical substances and which may have very marked physiological and even therapeutic actions. In the case of the liver, the thyroid, the suprarenal, and the testis substances can be isolated having distinct chemical characteristics and, as is well known in the case of the thyroid and the suprarenal at any rate, the material has not only definite physiological but also well-marked therapeutic actions. It is true that in some instances the physiological and therapeutic action and even the nature of the substances are not thoroughly known and this, perhaps, is especially the case with the pancreas and the testes, but the phenomena following the excision of the gland are so strikingly different from those seen after ligature of the duct that no doubt can be entertained of the real existence of an internal secretion.

When we turn to the kidney the facts obtained by experiment are very different and present considerable difficulties in their interpretation. If the organs are removed by the modern methods of aseptic surgery, and especially if the two kidneys are not removed at one operation but one after the other with a considerable interval, the effects produced are very different from those seen by the earlier experimenters and in my opinion no marked distinction can be drawn either as regards the duration of life or as regards the symptoms produced by double nephrectomy on the one hand or by ligature of both ureters on the other, or by nephrectomy on one side and ligature of the ureter of the remaining kidney. In all these conditions the most marked effects produced by the operation are a progressive weakness, refusal of food, a great fall in body temperature, some dyspnœa, diarrhœa, great wasting, occasional vomiting (this last symptom sometimes is absent), and death usually occurs on the fourth day. In the course of many experiments I have never seen any clinical symptoms presenting any close resemblance to those seen in acute uræmia in man, such symptoms, for instance, as severe vomiting, convulsions, or coma. It might, perhaps, be further added that the same train of symptoms is also seen where the functions of the kidney are arrested by ligature of the vessels in the hilum. Two deductions of some importance are to be drawn from the results of such experiments. In the first place, the symptoms and mode of death are similar, whether the functions of the kidney be arrested by double excision, by double ligature of the arteries, or by obstruction of both ureters. Secondly, these symptoms and the mode of death present a greater resemblance to those described in the human subject as latent uræmia than to those described as ordinary uræmia complicating acute or chronic renal disease.

The structure of the kidney does not yield any evidence of the existence of any groups of cells that might be supposed to yield an internal secretion, such as are found, for instance, in the pancreas or in the testes. At the same time this is, perhaps, not an argument of much weight because the liver undoubtedly is provided with an elaborate internal secretion, but yet this could scarcely be deduced from the histology of that organ. The most convincing evidence in favour of the existence of an internal secretion has in many instances been afforded by obtaining an active extract from the gland in question, so that the results of experiment with renal extract are those to which we would perhaps turn in order to clear up the difficulty as to the existence or non-existence of an internal secretion. Unfortunately, the evidence under this head is of an inconclusive character, different observers having obtained discordant results. Brown-Séquard, as is well known, was of opinion that most of the glands of the body possess internal secretions and in 1889 he advanced the view that the kidney was provided with an internal secretion and that the real cause of the phenomena of uræmia was the arrest of this secretion. He based this view not only on theoretical considerations but also on the supposed beneficial influence of renal extracts in the treatment of the so-called experimental uræmia and also of the ordinary uræmia seen in renal disease. Brown-Séquard's experiments were performed on nephrectomised rabbits and guinea-pigs and he stated that as a result of treating those with renal extract the period of survival was slightly longer than in the controls. Meyer in 1894 repeated these experiments, experimenting both on dogs and on rabbits, and he used a glycerine extract of the kidney of the dog for the purposes of treatment. Meyer found that after double nephrectomy Cheyne-Stokes respiration became developed in some 36 hours and he stated that the injection of some 20 cubic

centimetres of the renal extract caused the subsidence of the Cheyne-Stokes breathing, at any rate temporarily. He did not, however, obtain any very marked prolongation of life. Meyer also observed that venesection after double nephrectomy, followed by the transfusion of small quantities of defibrinated blood, also led to the disappearance of the Cheyne-Stokes rhythm. In a further series of experiments, instead of transfusion with ordinary defibrinated blood, he used defibrinated blood obtained from the renal vein and he stated that the improvement or temporary subsidence in the symptoms was in these circumstances of a more prolonged character. Meyer finally concluded that the blood of the renal vein contains some material elaborated by the kidney and capable of exercising a beneficial influence on the toxic state produced as a result of double nephrectomy. Vitzow performed somewhat similar experiments in dogs and rabbits and he also claimed that the injection of blood from the renal vein of healthy animals led to the prolongation of life in the nephrectomised animals. Two Italian observers, Ajallo and Parascandallo, were also of opinion that the injections of renal extract after double nephrectomy caused some prolongation of life. Tiderstedt and Bergmann adduced some experimental evidence to show that the extract of the cortical substance of the kidney had a vaso-constrictor action on the blood-vessels. This observation was contradicted by Lavandowski, inasmuch as he failed to obtain any effect on the circulation with the injection of renal extract and he came to the conclusion that an internal secretion did not exist. Dieulafoy, Tessier, Frankel, and many others have recorded cases in which the injection of renal extract in the human subject in cases of uræmia has been followed by a considerable increase in the flow of urine, together with a subsidence of the uræmic symptoms. De Lignerolles has used a serum obtained from the renal vein of goats in doses of some 20 cubic centimetres in the treatment of four cases of uræmia in the human subject and he states that in three cases there was very considerable improvement not only in the general condition of the patient but that the improvement was also shown by a diminution both of the toxicity of the urine and also of the amount of the albuminuria. Chatin and Guinard, in reviewing the literature in 1900, considered that on the whole there was definite clinical evidence of the beneficial effects of the treatment of uræmia by renal extract, although they acknowledge the very numerous sources of error owing to the great and sudden improvement that may ensue in uræmia as a result of other methods of treatment.

It is, of course, obvious that the treatment of uræmia by renal extract, even if the kidney possesses an internal secretion, cannot possibly meet with the same measure of success as is the case in the treatment of myxœdema with thyroid extract, inasmuch as the thyroid is not known to possess any other function, whereas in the case of the kidney it is impossible for life to be maintained when the excretory function is abrogated or seriously impaired. Stern, in 1903, reinvestigated the whole subject and made a complete series of observations on a large number of animals. In his first series of observations nephrectomy was done in two stages and the animals were treated with subcutaneous injections of a watery renal extract. Such animals, however, did not survive longer than the controls. In the second series the ureters were ligatured in place of the kidney being excised and here his results coincide with mine inasmuch as he found that the period of survival was no longer than in the controls in which double nephrectomy had been performed provided that the double nephrectomy was performed in two stages in order to eliminate shock as much as possible. In a further series of observations Stern injected an indifferent fluid, such as 0·8 per cent. of sodium chloride, after double nephrectomy, and in order further to control these results he injected in a certain number of control animals equivalent quantities of renal extract. As a general result of his observations he found that the animals treated with physiological salt solution might survive for considerably longer periods than those simply nephrectomised. A rather remarkable observation was the fact that in many instances more prolonged survival was seen in the animals that received the largest injections. Stern considers that dogs do not as a rule survive double nephrectomy more than 70 hours, but if treated with large quantities of physiological salt solution the survival may be prolonged to 90 or even 132 hours. He further draws attention to the fact that where vomiting and diarrhœa are marked symptoms the duration of life is more prolonged. Stern considers that his experiments do not afford any evidence in support of the existence of an internal secretion and that the variability in the duration of life after double nephrectomy depends to a certain extent on the variable degree of resistance of individual animals to toxic agents and that the beneficial effects of the injection of salt solution are probably merely dependent on the dilution of the toxic materials in the blood and possibly to their elimination by other channels and more especially the bowel. Stern's results are not only of theoretical interest but it is possible that the injection of large quantities of saline solution might be of use to prolong life in some forms of uræmia where there is a possibility of the renal functions becoming re-established. It has long been known in medicine that temporary improvement in the uræmic state might be induced as a result of venesection followed by transfusion. It is possible, however, that beneficial results on the lines of Stern's experiments might be obtained in cases of latent uræmia associated with complete suppression, calculous or other, where the prolongation of life by means of these injections might turn the scale in favour of the patient.

It will be seen that there is really at the present time no conclusive evidence in support of the existence of an internal renal secretion. On the other hand, the results I brought before the College in 1898 in the Goulstonian lectures show that there is some obscurity as regards the functions of the kidney, as it is impossible to explain the general disturbance of nutrition accompanied by marked wasting and the notable increase in the excretion of urea seen after removal of portions of the kidney as simply dependent on some deficiency in its excretory activity. These observations showed that the formation and excretion of urea were certainly controlled in some way by the amount of kidney substance present inasmuch as animals possessing one-third of their initial kidney weight were capable of living for indefinite periods, showing no other symptom of disorder than an increase in the amount of urinary water, whereas when but one-fourth remained death occurred associated with an increased excretion of urea together with great wasting. There is unfortunately no further evidence to explain the mode of production of this metabolic disturbance.

In concluding a review of the physiology of the kidney in so far as it affects the study of pathology and medicine it will be convenient to emphasise the similarity that really exists between the experimental results and those seen in the human subject as a result of disease. The fact that suppression of the functions of the healthy kidneys in animals is not really followed by the development of ordinary uræmia is one that I have not only emphasised in these lectures but also elsewhere. Ligature of the renal arteries, double nephrectomy, and ligature of both ureters, although diverse proceedings, are all followed by the same result and produce, as mentioned above, symptoms which are more comparable to those seen in calculous obstruction and described as latent uræmia in the human subject than to the acute uræmia seen in other renal diseases. The view has, however, been held in human medicine that this clinical picture known as latent uræmia is characteristic specially of calculous obstruction. I would, however, urge that this is not really the case and it is simply that calculous anuria is the most common condition in which it is seen owing to the frequency of this malady and a precisely similar clinical picture is seen in quite a number of other renal conditions. Thus there are obscure conditions where the excretory function of the kidney is entirely arrested as a result of some supposed reflex irritation, and one such case I recorded in my Goulstonian lectures where complete suppression ensued as a sequel of a peculiar form of gangrenous cystitis and yet where there was no obvious disease of the kidney to account for the complete suppression. This patient presented symptoms precisely similar to those seen in ordinary complete calculous anuria. Thirdly, obstruction of the renal arteries, doubtless a very rare condition, an instance of which was recorded by Mr. Lawrence and myself, again produced the same clinical symptoms. Fourthly, somewhat analogous symptoms associated with complete suppression may occasionally be seen in diphtheria but here vomiting is, perhaps, more apt to be present and in some instances, owing to the production of well-marked renal disease, the effects are more comparable to those of ordinary uræmia. Lastly, I have recently, through the courtesy of my colleague, Mr. Godlee, had an opportunity of seeing the

specimens from a case where the symptoms presented were again those characteristic of calculous obstruction but where the lesion was an acute hæmorrhagic nephritis. The consideration of all the experimental and these pathological results, I think, justifies the conclusion that the suppression of the functions of the healthy kidneys in man or in animals produces a set of symptoms that should be spoken of as those of latent uræmia and not those of ordinary acute, subacute, or chronic uræmia.

A Clinical Lecture
ON
REMISSIONS AND RELAPSES IN INSULAR SCLEROSIS.

Delivered in the National Hospital for the Paralysed and Epileptic, Queen-square, on Feb. 9th, 1904.

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GENTLEMEN,—IT is known that in a very considerable proportion of cases the course of insular sclerosis is marked by more or less frequent remissions and recurrences of symptoms. The fact was recognised by Charcot and has been mentioned also by succeeding writers, but to my mind sufficient prominence has very seldom been given to this interesting and exceptional feature of the disease. It has appeared to me worth while, therefore, to devote a lecture to the subject and thereby perhaps to aid in drawing more particular attention to a peculiarity of the disease which may be found to bear with some importance upon its diagnosis and it is conceivable also upon the question of its etiology. This feature is illustrated by the case of a female patient in attendance.

The patient is a married woman, aged 36 years, who was admitted into the hospital under my care in September, 1900, complaining of loss of power in the left leg, weakness across the loins, a general feeling of weakness, numbness of the fingers of the left hand, and weakness of the bladder. Such were the symptoms which she herself described. Others were brought out upon examination, and we shall come to them presently. She said that her illness had lasted about 18 months, but on further questioning her it appeared that this short period by no means really represented the duration of her disorder. 12 years previously, in September, 1888, one year before her marriage, she had complained of numbness in the soles of the feet which "felt as if they were asleep." This lasted for a week and then passed off entirely. In September, 1889, about the time of her marriage, numbness in the feet recurred and this time it extended to the calves of the legs and lasted for about three weeks. Again it passed away completely. In August, 1890, when pregnant for the first time, she again suffered from numbness, which now extended from the knees to the nipples, and about the same time she had double vision and a "contraction of the left side of the face," described by her medical adviser as Bell's paralysis. These symptoms lasted about a month and then quite cleared off under treatment. In 1895, just as she was pregnant for the second time, she again had an exactly similar attack upon the left side of the face, which also lasted for a month. About the same time she likewise noticed some numbness in the fingers of both hands. This has never quite left her since, but has varied in degree from time to time. With the exception of this numbness, which was so slight as to cause her no practical inconvenience, and indeed scarcely to attract her attention, she remained completely well till December, 1895, a period of some three years. She was then confined for the third time and three or four months later had to seek medical assistance on account of numbness and loss of feeling in the hands and arms, so that "she could not sew, or peel potatoes." She also had some loss of power in the left knee and for two months was unable to walk. After being away in the country for a time she became practically well again in all respects. And so she remained until April, 1899, when, being again pregnant, she complained of heaviness in the legs and some weakness across the back, but no numbness on this occasion. The child, a healthy one, was born in September, but after her confinement she continued to become weaker and to complain of a "heavy pain" across the loins. At the same time she first began to notice some precipitancy of micturition. In 1900 her walking power diminished and she fell and was unable to draw up her left leg, the ankle and knee being stiff, and on admission here she could not walk without assistance. The bladder trouble, too, had been worse and there had been occasional incontinence of urine. There had been no further diplopia. The following note refers to her condition in November, 1901, when she was shown by me at a lecture in this theatre: "The patient is well nourished, of placid, easy-going disposition, cheerful, but not especially emotional. The bright but rather vacant expression is very suggestive of that which is so often noticed in cases of insular sclerosis, but mentally she is intelligent, with good power of memory and attention. There is no articulatory difficulty. The ocular movements are good, but extreme lateral rotation is not well sustained to her right and when the eyes are turned to her left a few slow jerking movements are remarked, of a nystagmoid character. The jaw movements are equal and powerful on the two sides. There is no affection of sensibility in the face. There is no abnormality in the districts of the ninth, tenth, and twelfth nerves. In the upper extremities we find all movements powerfully performed and it may be said that there is no marked intention tremor, but when, by request, she touches the tip of her nose it is noticed that there is a slight wavy motion of the finger as it nears the face. In the lower extremities we find on the right side all movements present and power good. There is a little incoördination but no rigidity. On the left side the muscles are equally well developed but their power is much less and there is a great deal of spasticity. Dorsiflexion of the ankle is practically absent. Her gait is spastic, especially in the left leg, which is moved much like a hemiplegic limb. There are subjective numbness in the fingers, especially of the left hand, heaviness and dull pain across the loins, but no definite girdle sensation. Objectively there is no change to tactile stimulus. There is marked loss of sensibility to pain in the left leg as compared with the right, not quite constant, and extending from the foot (not including the sole) to above the knee without any definite limits. As regards reflex movements there is brisk jaw-jerk, the supinator jerk is in excess on the right side, the triceps jerk excessive on the right, absent on the left. The knee-jerks are both equally in excess and ankle clonus is present on each side. The plantar reflexes are both brisk and show extensor (Babinski) response. There is precipitate micturition with occasional incontinence of urine. Examination with the ophthalmoscope shows both discs rather pale, especially in the temporal half of each, and the left is more pale than the right; the vessels are of good size. The field of vision, both to colours and light, is somewhat restricted concentrically in the left eye."

The patient for the last two years has been at home but attends to-day at my request. Her walking power since the above note was taken has much diminished and there is now some spasticity in the right lower extremity as well as in the left.

I have entered into what is perhaps a somewhat wearisome detail of this case because it is one which manifestly strays from the commonly recognised type of insular sclerosis. Yet it is clear that this affords the only reasonable solution of the symptoms shown in the patient's history and present condition. In no other way can we explain the presence of such symptoms as transitory numbness, diplopia, short-lived but recurrent facial paralysis, loss of power with spasticity of gait, ankle clonus, the Babinski phenomenon, and pallor of the optic discs. This, then, is a case of insular sclerosis which well illustrates the importance of recoveries and relapses as a symptom of the disease. There is no doubt that not only have recoveries such as have occurred here been in many cases the cause of a patient's illness being lightly treated as one of hysteria but also, in my judgment, the common picture of hysteria has been somewhat largely based upon a misinterpretation of such symptoms.

Another example is that of a man, aged 35 years, tailor, married, who was first admitted under my care in April, 1895, with not strongly marked symptoms of insular sclerosis. It seemed that in 1881, when 21 years of age, he suffered from some hemianæsthesia from which he rapidly and completely recovered and remained well till 1894. He then complained of numbness, tingling, and weakness in both hands and feet.

From this he recovered in a fortnight and returned to his work. About a year later he was again attacked with numbness in both feet and slightly in the hands, together with some weakness in both lower limbs, especially the right. There was also some slight bladder trouble. He had to give up work and was eventually admitted into this hospital. He had then distinct weakness in the right upper and slightly also in the right lower limb. There was loss of sensation, both to touch and pain, in front of each thigh. The knee-jerks were in excess. After a few weeks he had improved and was able to leave the hospital, walking alone. After his discharge he continued to improve and was apparently quite well in a month or two. He remained well and steadily at his work for nearly three years. In 1898 he began to be weak in the legs again but remained at work till June, 1900. He was then much worse and could not walk without help but after three weeks' stay in a convalescent home he improved greatly and returned home, but still continued to suffer from numbness and stiffness of the fingers which interfered with his work. He again became worse and was readmitted into this hospital in January, 1901. I will only refer to a few salient points of his condition at that time. There was a little "intention" tremor in the arms, especially on the right side, and he was clumsy in both hands in picking up a pin. The right leg was weaker than the left, especially in dorsiflexion of the foot, and there was some rigidity on both sides, with incoördination of the right foot. His gait, too, was unsteady and of the spastic-ataxic type. The wrist and knee jerks were in excess, but there was no ankle clonus. The plantar reflexes were brisk, with extensor (Babinski) response. Patches of anæsthesia were found about his trunk and legs. This patient steadily improved in hospital at first, and the anæsthesia practically disappeared. After being discharged he again had a relapse and was unable to walk. There were marked increase in the spasticity of his legs and some return of anæsthesia. After keeping in bed for a short time he improved, but still showed an ataxic gait with some spasticity. He was discharged in May, 1901. At the present time he is under treatment in another hospital. On inquiry I have ascertained that he cannot stand without support or guide his hands. Work has been impracticable for four years past. (By the courtesy of hospital colleagues other cases illustrating the subject were shown.)

It is evident that the extreme irregularity which characterises the distribution of the patches of sclerosis in different examples of the disease under consideration makes it quite unreasonable to expect the same degree of uniformity in the symptoms that we are accustomed to find when sclerosis is of the "system" type, as, e.g., in tabes. It is by comparison of numerous examples, some of them verified by post-mortem examination, as well as by consideration of the effect which a sclerotic patch will be liable to produce when occupying any particular locality, that the ability to classify such cases as these under the name "insular sclerosis" is attained. The "symptom-complex"—to employ the rather unwieldy expression borrowed from the German—or "syndrome," to use the term employed by the French—the peculiar aggregation, that is, of the symptoms, points, I think, conclusively to this explanation of the cases.

In the course of private practice I have met with many examples—some of which have been already published[1]—of the tendency to remissions and relapses in insular sclerosis. Let me refer, though very briefly, to a few more of these, because in a subject of this kind a description of incidents occurring in concrete examples is more striking than any abstract statements.

CASE 1.—A woman, aged 33 years, whom I saw about a month ago, had an attack of influenza in 1895. Shortly afterwards she squinted and lost the use of her right hand and arm—i.e., although able to move it she could not use it for lifting things or dressing. She also lost feeling in it. At that time she dragged one of her feet, although she was not conscious of loss of power in it. The trouble in her limbs described lasted for about a month and then improved, although she did not quite regain the power. She had been very much improved for about a month when she relapsed and this time both right arm and leg were affected. For three weeks she was very helpless and stayed in bed for the most part. She then began to improve and perfectly recovered in the course of some months. From that time (between seven and eight years ago) she remained perfectly well until June, 1902, when, as she describes it, the right arm began to be weak and the weakness spread to the right hand. Just as happened before, she again became practically helpless in this limb and the leg was also affected to a certain extent. She went to the seaside and after a month had quite recovered. She remained well for a month and then felt her leg losing power again, and although keeping about she had great difficulty in walking. The right arm, too, was slightly weaker but she was able to use it. On the first attack eight years ago there was some difficulty in restraining the action of the bladder and this difficulty recurred in the last attack. There is now some weakness of the right limbs with attempted ankle clonus. On the occasion of my examination I failed to elicit any plantar reflex.

CASE 2.—A woman, now (1904) aged 48 years, lost the sight of her right eye in less than a week when 23 years old. At its worst she could not perceive light. It gradually recovered completely. A few years later she had transitory tingling in the right arm and weakness in one ankle which passed off. About 1894 there were loss of power to hold a pencil and dragging of the right leg, from which she also recovered. I saw her in 1898 when the right leg was very useless and she could only walk with help on each side. In reply to my recent inquiry her medical attendant reports the legs spastically paralysed, especially the right, presence of the Babinski phenomenon, and very feeble grasp of the hands.

CASE 3.—A woman, aged 22 years, was in excellent health till February, 1899, when vision with the left eye became indistinct and she had headache and giddiness. The left hand and arm were numbed and she could not walk properly, the right leg especially being weak. In April, 1899, an ophthalmic authority found vision on the right side $\frac{5}{6}$, on the left $\frac{5}{18}$, both eyes emmetropic, and the fundi normal. The diagnosis given was "functional derangement of nerves at the back of the eye." In April, 1900, I found right vision = $\frac{5}{6}$, left vision = $\frac{5}{9}$. The fundi were normal. There was nystagmus. She complained of "pins and needles" and numbness in both hands and below the left knee; she could walk a mile but would then be tired. There had been inability to hold a pen but she could now write. The plantar reflexes showed extension (Babinski) movement. I thought that she had suffered from retro-ocular neuritis in the course of insular sclerosis. Under observation in London she greatly recovered her health and her medical attendant wrote me a year or more later, "I am glad to tell you that she is doing well, hunting, and driving about in her old dashing style, and they speak of her as being 'quite well now.'" A few days ago I heard that she had had no return of the numbness or loss of power in her limbs, and that she was able to take riding, driving, and walking exercise, though in riding she had not regained the full grip of the saddle. It is, I suppose, possible that there may be no new developments in this case, but in view of what so commonly happens one cannot be at all free from apprehension that a relapse may some day occur.[2]

CASE 4.—A woman, in 1894, suffered from weakness and tremor in her legs, for which she had to keep her bed for some days. From this she recovered perfectly and remained well till 1897, when she began to lose strength in her legs and fell on several occasions. Four months later I found some spastic paraplegia, weakness of the sphincters, excessive knee-jerks, ankle clonus, and pallor of the left optic disc. The vision = $\frac{6}{12}$; there was some intention tremor of the hands.

CASE 5.—A woman, aged 31 years, whom I saw in 1901, suffered from an illness at 13 years of age, in which she had double vision and squinting, and staggered in walking. After

[1] Simulation of Hysteria by Organic Disease of the Nervous System. Churchill, 1891. Clinical Lecture on Insular Sclerosis and Hysteria. THE LANCET, Jan. 2nd, 1897, p. 1.

[2] Since this lecture was sent to press I have had the opportunity of once more seeing this patient. She looks the picture of health, and is studying in a school of art. On examination I note the following. Her upper extremities are absolutely right; there is no numbness or "pins and needles" in them, and she is able to draw with a perfectly steady hand. If she walks much the "feeling seems to go in her left knee and leg." Two years ago she could dance well but of late this has been quite impossible, owing to extreme giddiness. Holding the head down causes giddiness. During last winter she hunted, but owing to her want of grip, especially with the left leg, in jumping she had to rely very much upon her balance instead of depending upon the crutch. The plantar reflexes are of the extensor (Babinski) type. During the last year or so there has been a return of the visual difficulty which, according to her account, had entirely subsided and I now find V. R. = $\frac{6}{9}$, L. = $\frac{6}{12}$ with paracentral scotoma. She has no diplopia. Both discs are pale in the outer part, especially the left.

two or three months she quite recovered. Three years later the sight of the left eye became bad and an ophthalmic authority who examined her is said to have expected that she would become blind; but great improvement occurred and the vision with that eye I found to be ⅗, though the disc was distinctly atrophic. Diplopia had since occurred for several weeks at a time on three different occasions. A few years ago, however, she was so well that she walked ten hours a day in Switzerland. After this there was for a time some loss of power in the right leg. More recently the left leg became weak and still remained so when I saw her. She presented, besides the eye symptoms mentioned, a characteristic staggering gait, excessive knee-jerks, extension (Babinski) movement in the plantar reflex on both sides, and slight nystagmiform jerking. At times she had had numbness in her hands with inability to use them properly but that was not now the case. Some time after my examination I learned that she had again recovered her health and had married. I am unable to report her present condition.

CASE 6.—A woman, aged 36 years, was sent to me in April, 1899, suffering from loss of power in both legs, back, hands and arms, a staggering gait, and stiffness from the hip to the knee. The knee-jerks were excessive, ankle clonus was present on each side, with marked extension (Babinski) response in the plantar reflex. There was nystagmus and also atrophy of the left optic disc. The history was that she had been particularly healthy, and exceptionally strong muscularly, until 1890, when she suffered from two attacks of influenza. After being in bed for ten days in the second attack there was some loss of power and sensation in her legs. After this, although she recovered her general health completely, she thought that she never seemed to regain the "spring" in her walk but at times she was so much improved as to be unconscious of anything being wrong. After this there appear to have been several relapses and remissions. At one time there was involuntary escape of urine and fæces but this passed off in six weeks. For one and a half years she had complained of diminished sight of the left eye and latterly that of the right had not been strong. During the nine years of illness her case had been always diagnosed as one of hysteria except by the last medical man consulted who recognised its nature and sent her to me. In 1901 I received from him the following in reply to my inquiry as to the sequel of the case. "The mother was so annoyed at me for saying it was not hysteria and at you for supporting me that she removed the case out of my hands. I have made inquiries among some of the relatives but can get no information except that the symptoms had slowly increased and she died of exhaustion about 15 months ago."

Here I am tempted to quote from some notes of a case which I took in May, 1868, at a time when this disease had been, I think, scarcely differentiated and when certainly I knew nothing about it.

CASE 7.—The patient, a man, aged 41 years, had never had syphilis or any severe illness or trauma. 23 years ago he found himself one day lame in the left leg with twitchings in it and a feeling as though it were asleep. In a fortnight he was quite well and remained so for three or four years. Then he had a second attack like the first which lasted also about a fortnight, when he returned to business. A few years later he had another attack of similar character and has never since quite regained the power of the left leg. Two years previously he felt some numbness of the left hand. He has never had pain in the leg but of late a little walking, even for half a mile, would exhaust him utterly. A few days previously he felt for the first time powerlessness in the right leg with numbness. There was also diminished grasp of the right hand and for several days he had headache and lost power rapidly in his limbs and back. For the last few days he had been getting better again. In the morning his left leg was stretched out and he could not bend it. The grasp of the right hand was fair; that of the left was defective. The extensors of the left toes failed to lift the foot voluntarily but tickling the sole caused them to act "fiercely"—reflex excitability was very much exalted. (The Babinski phenomenon was evidently present.) Sight had been hazy during the last few months. The expelling power of the bladder was not great and he could not hold his urine to a great extent. I do not know the sequel of this case which was evidently, however, one of the class which we are considering.

CASE 8.—To complete the picture let me now quote notes of a case which was under my care in this hospital many years ago the diagnosis of which was confirmed by necropsy. In May, 1885, a female, aged 27 years, previously in perfect health, fell upon her hands whilst running and rose with great difficulty on account of extreme giddiness which had doubtless occasioned her fall. In a few minutes she recovered and for a week had nothing to complain of, then her sight became indistinct, she had diplopia, and pain at the top of the head. She attended here as an out-patient and gradually lost her symptoms. In February, 1886, she was suddenly unable to walk and lost power also in her arms. Two months later she could not stand. There were difficulty in micturition and occasional leakage of the bladder. Admitted as an in-patient in July, 1886, she lay in bed with but little power of moving her limbs. There was some anæsthesia of the lower extremities. The knee-jerks and plantar reflexes were present; there was no ankle clonus. Later she suffered from spastic rigidity of the legs, marked interosseal muscular atrophy of the hands, absence of knee-jerks, acute bed-sores, bladder trouble, and she died in November from gradual heart failure after constant vomiting. From first to last her illness occupied just 18 months. Post-mortem examination showed on the posterior surface of the cord just above the lumbar swelling beneath the pia mater a slightly raised, rather dark-looking patch. On each side of this was a black-looking vein filled with clot, contrasting with the almost empty pink-looking veins elsewhere. Section showed soft greyish-looking tissue, replacing in part the white and grey substance of the cord. Sections through the lumbar cord showed in some parts of the anterior and lateral columns grey semi-gelatinous patches. In the mid-dorsal region the whole transverse area of the cord flowed out on section, having an opaque grey colour. In the mid-cervical region sections showed grey gelatinous patches occupying various portions of the axis.

In the present state of our ignorance regarding the etiology of insular sclerosis there is no advantage in disguising the fact that we are unable to point to any mode of treatment which appears to influence the progress of this disease. It becomes then a question of considerable importance whether the remarkable tendency to the occurrence of remissions and relapses in its course is calculated to throw any light on the mode of its causation. As it seems to me the most likely view (and possibly that which finds most favour) is that in insular sclerosis the essential cause is the presence in the blood-vessels of an infective agent which sets up an inflammatory process in the interstitial tissue. This may occur at any part of the cerebro-spinal axis. On the other hand, it has been suggested that the pathological process is essentially dependent upon some congenital abnormality. I am disposed to think that such an explanation must be set aside. The grossness of the anatomical findings alone would seem to be inconsistent with such an hypothesis. Besides this, insular sclerosis cannot be said to be a family disease, which might be expected were the disease of congenital origin. It is, in my experience, exceedingly rare to meet with more than one example in a family. Diseases of the nervous system of endogenous origin are usually characterised as well by the fineness of the changes observed in the structures involved as by their slow and comparatively steady progress, uninterrupted by any important tendency to marked remissions and relapses. On the other hand, if we turn to disease of exogenous origin we shall find that in one, undoubtedly and pre-eminently of infective origin—syphilis—we are apt to meet with this peculiar feature very distinctly exhibited. Thanks to the fact that specific treatment in syphilis has a powerful and very definite influence upon most cases of the disease, it is quite likely that the tendency to recovery, followed sooner or later by relapse, in that disease is a good deal obscured. But, even as it is, that tendency is constantly showing itself after a time when the beneficial effects of the remedies may be assumed to have passed off. In syphilis we have to deal with comparatively gross changes—inflammation, gummata, endarteritis, and the like. For the most part the changes in insular sclerosis may be said to be of gross character. It is true that some observers have pointed to the fact that occasionally the anatomical appearances in insular sclerosis cast some doubt upon the more usually received opinion that the disease is of inflammatory origin. Redlich, for example, amongst others, has found in insular sclerosis nerve fibres profoundly affected along with relatively little-changed neuroglia, and says that vascular changes happen

only in a certain number of cases. But, as I have pointed out on another occasion, this is by no means conclusive. Parenchymatous degeneration of the posterior columns in a case of tabes may be accompanied by gross intracranial endarteritis. Presumably, therefore, a toxin may give rise coincidently to each form, and in some cases of insular sclerosis—or in some localities in a particular case—its influence may fall upon the nerve fibres rather than on the vessels and interstitial tissue.

The remarkable variations in the degree of acuteness in insular sclerosis, again, appear to be much more consistent with an infective than an endogenous origin. I have had cases under observation in this hospital in one of which 15 and in another 19 months only had elapsed from the commencement of symptoms and death. One that I met with in private (which was not, however, verified by necropsy) lived only 12 weeks. Ribbert examined anatomically one that survived only for three months. More often, as is well known, a far longer period characterises these cases, which may drag on for ten or 20 years or more.

We are well accustomed to the differing degree of acuteness in all forms of infective disorder, due probably either to intensity of the infecting agent or diminished power of resistance. In Friedreich's ataxia, on the other hand, to instance what is probably an example of congenital defect, the course of the disease is practically uninterrupted and chronic in character.

I fail also to see adequate grounds for the suggestion which has been more recently offered that insular sclerosis is the result of a toxic influence upon an existing defect of development. The presupposition of such a congenital defect appears to me as unnecessary as it would be in the case of infantile paralysis or of the neuritis which so often is a sequel of diphtheria. The frequency with which insular sclerosis attacks persons of exceptionally fine physique, the extreme rarity of its occurrence in more than one member of a family, as well as the marked remissions—often amounting to temporary recovery—which may take place in its course, appear to be inconsistent with such an explanation and to be much more in accord with the view that the disease is purely of toxic origin.

A Clinical Lecture
ON
TWO CASES OF HEMIPLEGIA.

Delivered at the Liverpool Royal Infirmary on May 31st, 1904,

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GENTLEMEN,—I wish to bring to your notice two cases of hemiplegia of sudden onset in young patients, cases which present a superficial resemblance to each other but which differ essentially in their pathology, prognosis, and treatment. Sudden hemiplegia is always the result of some vascular lesion in the brain, generally hæmorrhage, less frequently embolism or thrombosis. Embolism requires the existence of a clot formed in some other part of the body, generally in the heart, and carried by the blood into a vessel in the brain; thrombosis generally arises from a diseased state of the arterial walls accompanied by narrowing of the lumen. Hæmorrhage likewise indicates disease of the arterial walls but of a kind which leads to rupture under the pressure of the contained blood. There are practically only two conditions which give rise to arterial disease—viz., senile degeneration and syphilis—and consequently we may safely assume that hemiplegia in a patient under the age of 40 years is due primarily to valvular heart disease or to lues venerea.

The first case is that of a man, aged 25 years, a hairdresser, who has had right hemiplegia for a year. Two years ago he contracted syphilis and was treated for it, as he says, for seven months; but we do not know the kind of treatment that was prescribed nor with what thoroughness it was carried out. No secondary symptoms were noticed and he remained in fair health for a year, after which he began to suffer from intense occipital headache which lasted three weeks. Near the end of this time the paralysis began. While he was shaving a customer he felt his right leg suddenly give way under him; he fell to the ground and found that he was unable to move his right arm and leg. After a few minutes power returned and he got up and walked home, a distance of about 200 yards. An hour later, as he was walking upstairs, he had another similar but more severe attack. He fell down, the right arm and leg and the right side of the face were convulsed, and there was involuntary micturition. The convulsions lasted nearly 24 hours. Speech was seriously interfered with, but consciousness, he believes, was not lost in either attack. He remained quite helpless and was confined to bed, but after three months enough power had returned in his leg to enable him to walk about with the help of a stick, while the arm remained useless. At the present time he presents the characteristic picture of chronic hemiplegia. There are spasm of the right side of the mouth and difficulty of articulation, the right hand is contracted and almost motionless, while the elbow, and still more the shoulder, can be moved fairly well. The right leg is stiff, the knee being generally kept straight and the foot over-extended, and he walks with the characteristic hemiplegic gait, the foot being moved forward in a segment of a circle with the hip tilted to the opposite side to avoid the toe catching in the ground. The knee-jerk is extremely lively and an ankle clonus is readily obtained. The other systems are normal and the general health is satisfactory. A small scar indicates the seat of inoculation.

In view of the early age of the patient and the absence of any possible source of embolism we should be justified in considering this as a case of thrombosis from syphilitic disease apart altogether from the history of infection. Two points in the history of the onset of the attack strengthen this supposition—viz., the occurrence of severe antecedent headache and the retention of consciousness during the attack. Severe headache in a person not previously liable to it should always suggest the possibility of syphilis. In this case it was probably due to localised basal meningitis which is a frequent manifestation of the disease. The significance of the retention of consciousness is that it points to the lesion being a thrombosis rather than a hæmorrhage or embolism. Cerebral hæmorrhages, except the smallest, are almost always attended by coma in consequence probably of the increase of intracranial pressure brought about by the effused blood, aided, it may be, by the shock or concussion arising from the direct damage to the brain. In embolism, unless the vessel occluded is very small, consciousness is generally lost for a while. Here there is no question of increased intracranial pressure but there may well be a severe degree of shock. The arrest of the circulation in the district supplied by the obstructed artery takes place with absolute suddenness and the instantaneous arrest of function in a considerable mass of brain tissue may readily upset the balance of the whole organ.

In thrombosis, on the other hand, there can obviously be no increase of intracranial pressure and a large vessel is seldom obstructed all at once. Some slowing of the circulation through the narrowed arteries must take place before it is arrested altogether and where a large vessel has been occluded we often have evidence that the obstruction has commenced in some of the branches and spread from them to the main trunk. Hence there is an absence of shock and the surrounding parts have time to adapt themselves to the changed conditions. The first paralytic seizure, from which recovery took place, suggests a temporary arrest of the circulation, restoration being due either to the obstruction not being complete or to the establishment of a collateral circulation. Either explanation is consistent with a state of the arteries predisposing to thrombosis.

We conclude, therefore, that this patient is suffering from the consequences of thrombosis of some of the vessels in the left side of his brain, the thrombosis being the result of syphilitic disease of the arteries. The onset of paralysis at so early a period, one year, after infection, is worth notice, though it is not so uncommon as to throw any doubt on the correctness of the diagnosis. The prognosis is good so far as life is concerned. We may with some confidence assure the patient that if proper treatment is carried out there will be no extension of the paralysis. We cannot restore the portion of his brain which has been deprived of its blood-supply but by perseverance he may train the remaining portions to take

on some of its functions and he may educate his left hand. The treatment will consist chiefly in the administration of mercury and iodide of potassium and in the performance of appropriate exercises for the muscles.

The next case is that of a woman, aged 22 years, who has had left hemiplegia which came on suddenly a fortnight before admission. She had rheumatic fever in childhood and scarlet fever at the age of 14 years but had no other illness of importance till the beginning of April this year, when she had some pain in the left foot followed by headache. A few days later on awaking in the morning she found she was unable to move her left arm and leg. In view of the age and sex of the patient and the sudden onset of the hemiplegia I was prepared to find a source of embolism in the existence of well-marked mitral stenosis. In this, however, I was mistaken. There were no presystolic murmur, no substernal pulsation, and no notable accentuation of the pulmonary second sound. Further, there was no history of hæmoptysis or of urgent dyspnœa or palpitation on exertion, symptoms likely to be present in mitral stenosis. The only indication of anything wrong with the heart was a soft systolic murmur heard at the apex. The impulse was felt chiefly in the fourth left interspace and it was doubtful whether there was any cardiac hypertrophy. We know from experience that mitral stenosis is by far the most frequent cardiac lesion which gives rise to embolism. The dilatation of the left auricle in this condition favours coagulation of blood in the appendix and a portion of the clot may break off and be carried away by the current of blood. The absence of mitral stenosis therefore seemed to throw some doubt on the correctness of the diagnosis of embolism and the doubt was strengthened by the history of premonitory headache. After the first three days, however, we found that the patient's temperature, normal on admission, assumed a hectic type, rising in the evening to about 102° F. and falling in the morning to about 97°, and I began to suspect that we had to do with a case of infective or ulcerative endocarditis. This suspicion was strengthened by our finding some enlargement of the spleen and it was placed beyond doubt by the discovery of streptococci in the blood, from which cultures were obtained on two occasions.

Here we have a case of hemiplegia depending on embolic obstruction of a vessel in the brain, the embolus having arisen from a septic inflammation of the endocardium and the hemiplegia is really symptomatic of infective endocarditis. The premonitory headache, unlike that noticed in the previous case, was clearly not due to a local condition but to the toxic state of the blood and was analogous to the headache of specific fevers.

The prognosis in this case is obviously much graver than in the former. In neither case can we expect complete restoration of movement to the paralysed parts but in the second we have to deal with a constitutional condition which is but little influenced by therapeutic measures, and behind this we have a certain amount of permanent damage to the heart.

Infective endocarditis is one of the most fatal diseases with which we are acquainted but recovery, though rare, is not unknown and the prognosis becomes better the longer the case lasts. The treatment must be chiefly directed towards maintaining the patient's strength and moderating the fever. Quinine in full doses is frequently prescribed and in a case under my care some years ago its administration was followed by recovery. Antistreptococcic serum has been frequently employed but the results have been disappointing. In the present case it has been administered hypodermically in 30 cubic centimetre doses on 11 nearly consecutive days without producing any obvious effect on the temperature or the other symptoms. Subsequent examination of the blood, however, did not yield any evidence of the presence of micro-organisms, but how far the serum therapy employed is to be credited with the disappearance of the streptococci is open to doubt.

METROPOLITAN HOSPITAL SUNDAY FUND.—The total amount received at the Mansion House on behalf of the Metropolitan Hospital Sunday Fund up to Tuesday evening was £46,000, to which may be added about £11,000 as Mr. George Herring's generous contribution, leaving about £7000 still to be made up if the fund this year is not to fall below that of last year.

ON VINCENT'S ANGINA.

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VINCENT'S angina is a form of pseudo-diphtheria which is associated with, and is probably due to, certain characteristic micro-organisms. The membranous or pseudo-membranous affections of the pharynx which do not depend on the presence of the diphtheria bacillus are worthy of very careful attention. Early diagnosis is of great importance and depends mainly on bacteriological examination. If the clinical features of these affections be alone relied on in the early stages to reveal the nature of the disease they will very frequently indeed be mistaken for diphtheria and the dread which that disease still inspires and all the inconveniences of isolation will be inflicted unnecessarily upon the patient. Treatment will be wrongly directed and prognosis will be faulty.

The form of pseudo-diphtheria illustrated by the ten cases on which this paper is based was first described by Vincent in 1898. His observations have been verified by many French and German writers since that date, but so far as I can discover the disease has received very little attention from English observers. It is, I believe, not uncommon, but its frequency is, without doubt, masked, as Vincent surmised, by the fact that it is still frequently confounded with diphtheria. The pathological processes in the two diseases are, however, quite different. In Vincent's angina there is a necrosis of the mucous membrane, which, spreading deeply, may involve and destroy the whole thickness of the tonsil or the whole of the uvula, but which never gives rise to the formation on the surface of the mucosa of a thick false membrane such as occurs in diphtheria. When a considerable amount of destruction of tissue has taken place the distinction is made readily enough. But when, as in the milder cases, the necrosis is very superficial, or as in the more severe type at the outset the presence of the necrosed epithelium on the surface hides the depth of the lesion, the resemblance to diphtheria is very close indeed. Positive diagnosis can then only be made by bacteriological examination which determines the absence of the diphtheria bacillus and the presence in large numbers of a typical bacillus with which is often associated a spirillum. These micro-organisms are fully described below.

Clinical characters.—The onset of Vincent's angina is often, in children, quite insidious. In some cases there has been such an absence of symptoms that the affection has only been discovered during a routine examination of the throat. In others attention is drawn by the glandular enlargement in the neck. In a minority only is there at the outset complaint of sore-throat or pain in swallowing. It is, however, not always easy in the case of children to ascertain the presence or absence of a slight amount of dysphagia. In adults headache, general malaise, or sore-throat, or a combination of these symptoms, may usher in the disease.

Examination of the throat in the early stage shows what appears to be a patch of exudation situated on some part of one tonsil or on the upper part of a tonsil, the upper part of the uvula on the same side and the edge of the soft palate between. The latter situation is unusual in diphtheria and should arouse suspicion as to the nature of the complaint. The pseudo-membrane is yellowish or greenish-yellow in colour. It is detached only with difficulty, leaving a bleeding eroded surface and it has a very distinct fœtor. If this is not sufficient to taint the breath it can be readily detected by rubbing a swab on the patch. The appearance of the throat in this early stage may exactly resemble that produced by the formation of the membrane of diphtheria. But the after-course of all but the mildest cases clearly shows that no such formation of membrane has occurred and that the patch is the result of necrosis of the superficial layer of the mucosa and not the result of the formation of membrane upon the surface.

Mild or diphtheroid type.—In the mildest cases, which Vincent has called "diphtheroid," the process does not extend over much of the surface nor penetrate to any depth. It is invariably unilateral in such cases, which is again something of a distinction from diphtheria. There is practically

no swelling of the fauces and very little injection. Enlargement of the lymphatic glands in the neck is nearly always present on the side of the lesion but is never very great, is never accompanied by periglandular exudation, and never results in suppuration. The submaxillary group is most commonly affected.

The temperature is generally a little raised but it rarely exceeds 101° F. Constitutional symptoms, loss of appetite, and general malaise are but slightly marked. Adults may complain of dysphagia; its presence is not usually ascertained in children. In the course of from 24 to 48 hours the temperature falls to normal and the general symptoms disappear, but this does not coincide with any particular change in the condition in the throat. The necrosed patch only slowly separates, leaving generally a shallow but definite excavation which quickly heals over. From eight to ten days is the usual time which elapses before the tonsil has cleared up. In adults it may be shorter. There are no complications nor after-effects. The disease when it follows this type is in fact a mild one, of little moment. Its only importance lies in its resemblance to diphtheria, which, as far as symptoms and naked-eye appearances are concerned, continues throughout its course until the separation of the slough.

Ulcero-membranous type.—In these more pronounced cases the appearance of the fauces is at the commencement identical with that in the preceding group but the process soon extends over the surface and involves the mucous membrane more deeply. The whole of one tonsil may be affected with the adjoining pillars of the fauces and the adjacent edge of the soft palate and side of the uvula may be attacked. The lower edge of the pseudo-membrane may be beyond the field of vision and frequently ordinary examination reveals only a small area of necrosis, while by thoroughly depressing the tongue and inducing retching a very large patch is brought into view. The disease but rarely involves the other side of the pharynx.

It is not until three or four days after the onset that it becomes clear that a destruction of tissue is taking place such as does not occur in diphtheria and the case then loses all resemblance to that disease. These cases Vincent describes as first diphtheroid and later ulcero-membranous. The process having ceased to extend, a slow separation of the slough takes place. This generally takes from ten to 14 days, but may be much longer. The whole surface of a tonsil or its whole substance may separate, leaving a deep excavation. Necrosis of the upper part of the uvula and of the tonsil and of the edge of the soft palate between may lead to an increase of the aperture of the fauces in this region. Half of the uvula may be destroyed. This occurred in Case 1. The part of the uvula which escaped, which was little more than a shred, was drawn up to the opposite side and became unrecognisable. In extreme cases the whole uvula may be attacked and come away as a grey foul slough. This took place in Case 10. During the process of separation of the necrosed mucous membrane granulations appear on the surface which bleed readily when touched. When once the surface has cleared up healing quickly occurs. If there has been much loss of tissue some contraction may result as in Case 1. With the condition in the throat there is always a certain amount of pyrexia, which is, however, seldom very marked or prolonged. Difficulty in swallowing may persist for a few days, and while the temperature is raised constitutional symptoms, headache, loss of appetite, and general malaise are present. There is, as in the preceding group, very little swelling of the fauces and generally not much reddening. In severe cases, however, a zone of intense injection may surround the affected area. Some enlargement of the glands of the neck is invariable, but is small in amount and does not go on to suppuration. Albuminuria is very rarely present. Case 9 recorded below is the only instance I have found of its occurrence.

In the majority of cases complete recovery ensues, the only after-effect being an occasional drawing down of the palate to one side as a result of the contraction which occurs in the healing process. But although the tendency of the disease is generally towards recovery a special virulence of the causative agent or a special susceptibility of the patient may result in the lesion spreading widely through the pharynx and becoming then a serious menace to life. Cases 9 and 10 illustrate extreme results of the necrotic process. In both death ensued; in the first seven days after the onset, apparently from toxic absorption from the site of disease; in the second the disease spread to the larynx and gave rise to necrosis of the thyroid cartilage. Suppurative broncho-pneumonia resulted, to which the patient succumbed on the thirty-seventh day of his illness.

Prognosis.—It is impossible at the present time to ascertain even approximately the death-rate in Vincent's angina. It can only be said that it is very much lower than in diphtheria. Cases as severe as those mentioned above are in all probability quite exceptional. Relapses are said to occur and one attack does not confer immunity.

Bacteriology.—Cultivations taken from the throat in this disease do not yield characteristic results. The growth which occurs is composed of different micro-organisms, the pyogenic cocci being the most frequent. The bacillus coli communis is occasionally present (Vincent, Raoul and Thiry, Lemoine) and the pneumococcus has been observed (Neissler) mixed with other cocci. If, however, a little of the exudation be rubbed on a slide and stained with any aniline dye a characteristic bacillus is seen in great numbers and with it is frequently associated a spirillum. The relative numbers of the two vary. In the mild diphtheroid cases the bacillus always greatly predominates. Vincent, in fact, states that it may be exclusively present. In the ulcero-membranous type, on the other hand, the spirillum is much more frequent and may even be present in greater numbers than the bacillus.

The bacillus which Vincent has called the "fusiform bacillus" is very long (from 10 to 12 μ generally). Its centre is a little thickened and its ends somewhat pointed, giving rise to the typical fusiform shape from which it has derived its name. Two bacilli arranged end to end are sometimes seen, but apart from that it is usually distributed uniformly through the field. It may be present in such numbers as to form almost solid masses. Shorter forms are seen (from 6 to 8 μ), occasionally curved and comma-shaped. Very long, badly-staining bacilli are also sometimes present, and now and then a bacillus is seen which is greatly swollen in its centre, the expanded part not taking up the stain while its edges are defined by a thin dark line. The bacillus is readily stained by aniline dyes but frequently not uniformly. One or more clear spaces are present in its length. These may not be visible if it is stained too deeply. It does not yield the Neisser staining reaction and it is decolourised by the Gram method. Its motility is doubtful. So far all attempts to cultivate it have failed.

The spirillum is only faintly stained by the ordinary reagents. It is decolourised by the Gram method, is motile, and, like the bacillus, has never been cultivated. At the commencement of the disease either the bacillus or the bacillus and spirillum are found almost pure in the pseudo-membrane. Later they become mixed with numerous other micro-organisms which inhabit the mouth. Even then the bacillus has been found isolated in the deeper parts of the lesion (Vincent). The spirillum, on the other hand, is always most numerous on the surface. Inoculation of animals with portions of the false membrane has not produced any definite result.

Both the above micro-organisms, or, at least, organisms exactly resembling them, have been found in small numbers in the mucous membrane of the mouth and pharynx in the normal state. They have also been found in dental tartar. In membranous and ulcerative diseases of the pharynx, the bacillus, like other micro-organisms which inhabit the mouth, may be present in the lesion, but only in very small numbers. A spirillum indistinguishable from the above has been found in abscesses adjoining the buccal cavity.

The question as to whether these micro-organisms are the actual causative agents in the disease cannot yet be considered settled. The failure to cultivate them makes it impossible definitely to decide the point. Their presence in such large numbers and so constantly makes it, however, very probable that the pathological process which occurs is due to their presence. Vincent, arguing from the fact that it is alone present in some cases, considers the bacillus the more important factor; recognising at the same time that the spirillum, since it occasionally predominates in numbers, must be of importance in the etiology. It is possible that the growth of the bacillus is aided in some way by the presence of the spirillum.

The relation of Vincent's angina to hospital gangrene and to ulcerative stomatitis.—Opportunities of observing hospital gangrene or phagedæna are nowadays very rare but Vincent, in 1895 and 1896, was able to make a bacteriological examination in a number of cases which he saw in Algiers.

He found in great numbers a bacillus and a spirillum which in their form, their staining reaction, and in their resistance to all his attempts to cultivate them were identical with the micro-organisms found in the throat affection described above. The pathological process also is very similar. In both diseases there is a destruction of tissue with the formation of a pseudo-membrane, although in phagedæna the lesion is much more extensive and fatal. The analogy between ulcerative stomatitis and Vincent's angina is both pathological and bacteriological. The resemblance between the lesion in the two diseases is very close indeed. It differs, in fact, only in locality and it is of great interest to find that they are both associated with the same micro-organisms. Bernheim in 1898 first drew attention to the presence in ulcerative stomatitis of bacilli and spirilla apparently identical with those which had already been observed in certain anginas. His statements have been verified by several writers since. Case 4 and 7, described below, both presented a localised ulcerative stomatitis in addition to the throat condition, and in both cases fusiform bacilli and spirilla were present in large numbers in both buccal and faucial lesions. In a case of more general ulcerative stomatitis occurring in a woman dying from carcinoma of the rectum I found the same micro-organisms in great profusion.

In conclusion, I have to express my indebtedness to Dr. R. A. Birdwood, medical superintendent of the Park Fever Hospital, and to Dr. J. S. Richards, medical superintendent of the Southwark Union Infirmary, for permission to publish the cases related below.

CASE 1.—The patient, a girl, aged eight years, was taken ill on Sept. 12th, 1903. On the 13th she complained of headache and sore-throat, on the 14th glandular enlargement in the neck was noticed, and on the 18th she came under observation. Her temperature was 101° F. The right tonsil, the right side of the uvula, and the edge of the soft palate were then covered with a fœtid greyish-yellow pseudo-membrane. The lower edge of the affected area could not be seen. On the 21st the slough was separating and by the 28th it had separated, leaving a deep excavation where the tonsil had been, while the uvula which remained was merely a shred. The edge of the soft palate was also hollowed out. Small granulations covered the healing surface. The shred of uvula was almost at once drawn up to the opposite side and in a short time could not be recognised. No complications ensued. A month later there was some drawing down of the soft palate towards the affected side.

CASE 2.—The patient, a girl, aged three years, did not seem well on Oct. 17th. She appeared to have some difficulty in swallowing on the 18th when she came under observation. Her temperature was 100·6° F. The upper part of the left tonsil, the upper part of the left side of the uvula, and the edge of palate between was covered with what looked like greyish exudation. There was distinct fœtor. On the 20th there was a little glandular enlargement in the neck and the necrosed patch showed signs of separating. The throat was not quite clear till the 30th. The temperature fell to normal on the third day. The angle between the uvula and the tonsil was considerably enlarged by the loss of tissue which had occurred.

CASE 3.—The patient, a girl, aged three years, was taken ill with vomiting on Oct. 23rd and was first seen on the 24th. The temperature was 100·4° F. There was a greenish-yellow patch on the tonsil with fœtor. On the 26th the temperature was normal. The throat had cleared up by the 30th, a shallow but distinct excavation remaining which quickly healed over.

CASE 4.—The patient, a boy, aged five years, presented no symptoms of illness. On Dec. 22nd, in course of routine examination, a yellowish-white patch was seen on the right tonsil, and the temperature was found to be 100° F. On the 23rd a submaxillary lymphatic gland was enlarged. The temperature had fallen to normal. A limited area of ulcerative stomatitis was present surrounding two lower molar teeth which were quite loose. Fusiform bacilli and spirilla were found in large numbers in the ulcerated area. The throat very slowly cleared up. It was not normal till Jan. 8th.

CASE 5.—The patient was a boy, aged three years. On Feb. 2nd during routine examination the upper part of the left tonsil and the angle between it and the uvula were found occupied by a greenish-yellow superficial slough and the submaxillary lymphatic glands were a little enlarged on the same side. The temperature was not raised and the child did not appear in any way ill. There was distinct fœtor. The throat cleared up in ten days, no other symptoms developing. In this case the spirilla were more numerous than the bacilli.

CASE 6.—The patient was a boy, aged three years. Attention was drawn to this case by glandular enlargement in the neck. A patch was found on the left tonsil. There were no rise of temperature and no other symptoms. The throat was clear a week later.

CASE 7.—The patient, a boy, aged five years, was suffering from congenital heart disease. In this case again, attention was drawn by slight enlargement of the submaxillary lymphatic glands. A patch of greenish pseudo-membrane covered the upper part of the left tonsil and the angle between it and the uvula. There was also, as in Case 4, a localised ulcerative stomatitis about the lower temporary molar teeth on one side. Bacilli and spirilla were present in both lesions. Fœtor was marked. The throat cleared up in 12 days.

CASE 8.—The patient, a female, aged 25 years, was attacked with headache and general malaise on March 1st. On the 2nd there were sore throat and a little glandular enlargement on the left side of the neck. A greyish patch was present on the left tonsil. On the third day the temperature was normal and the patient felt well but the condition of the throat was unchanged. Two days later it had cleared up.

CASE 9.—The patient, a girl, aged eight years, came under observation on April 8th, 1903. She had been ailing since the 5th; she had complained of headache but not of sore-throat. Her temperature was 104° F. A thin greyish pseudo-membrane covered the left tonsil, the left side of the uvula, and the edge of the soft palate between. Fœtor was very marked. There was slight glandular enlargement in the neck. On the 9th the temperature was still 104°; the pseudo-membrane was thicker. The general condition of the child was distinctly worse. She was very restless. On the 10th the slough was greenish-yellow, exceedingly foul, and had invaded the right side of the pharynx. A cloud of albumin was present in the urine. On the 11th both tonsils and the whole of the uvula were covered by slough. Swelling of the fauces was very slight, as it had been all along. A narrow zone of intense injection surrounded the necrosed area. The temperature was irregular but had never fallen below 101·6°. On the 12th foul diarrhœa set in. The child was exceedingly pale and slightly jaundiced. Her condition became steadily worse and she died at midnight. At the post-mortem examination the whole of the fauces, the base of the tongue, and the epiglottis were covered by a greenish-yellow foul slough. The organs were healthy.

CASE 10.—The patient, a boy, aged nine years, had suffered from headache and sore-throat for a week before he came under observation. There was then a yellowish pseudo-membrane covering the right tonsil, the right side of the uvula, and the edge of the soft palate on the right side. The temperature was 100° F. There was a little glandular enlargement in the neck. During the next few days the pseudo-membrane became a definite slough which, increasing in size, involved the whole thickness of the right tonsil and of the uvula. The left tonsil was also attacked over a limited area. On the fourteenth day of illness the sloughs were definitely separating and by the twentieth day the right tonsil had completely disappeared, leaving a deep excavation. On the same day the uvula was picked off with forceps as one slough. Sprouting granulations appeared over the raw area left by the separated sloughs. During this period the temperature had been very irregular but always raised and the breath had been very foul. By the twenty-eighth day the fauces had healed. On the next day but one some tenderness and swelling appeared over the thyroid cartilage. This was followed by aphonia, slight stridor, and expectoration of pus. The temperature was higher. From this time onwards the patient went steadily downhill. A little stridor persisted but there was never sufficient respiratory obstruction to necessitate tracheotomy. Signs of consolidation appeared over the left lower and the right upper lobes. There was profuse purulent expectoration, great tenderness over the larynx but very little swelling, and persistent high temperature. The patient died on the thirty-seventh day. At the post-mortem examination, in addition to the destruction of tissue visible during life in the fauces the right side of the epiglottis had separated and healed. The anterior part of the thyroid cartilage had become necrosed and lay in small pieces in a cavity which opened into the larynx in front. The walls of the

cavity and the edges of the opening were green and sloughy. There was much swelling of the upper aperture of the larynx. The right upper and the left lower lobes of the lungs were affected throughout with broncho-pneumonia which had in many places broken down, giving rise to multiple abscesses. The other organs were healthy.

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DIET IN CHRONIC HEART DISEASE.

BY PROFESSOR THEODOR SCHOTT, M.D.

As a kind of supplement to a discussion which took place at a meeting of the British Balneological and Climatological Society in the spring of last year and, moreover, in accordance with the express wish of numerous practitioners, I will now endeavour briefly to pass in review some general rules with respect to the diet which I have found satisfactory in the treatment of chronic heart disease during the year. Only such points will be discussed at length as have a direct relation to heart diseases.

The principal rules, which are, in fact, to be regarded as fundamental, may be conveniently summed up in the two following clauses: (1) patients must avoid everything which excites the action of the heart; and (2) everything must be avoided which embarrasses the action of the heart.

The substances which most readily cause excited action of the heart are in the first place strong coffee or strong tea and in the next place strong alcoholic liquors. It is to be observed that in persons who from youth upwards have made free use of coffee or tea, either in great quantities or in strong infusion, if they come to suffer from heart disease a relatively small quantity of such habitual stimulants will be found to aggravate the cardiac symptoms. This is the reason why in Germany the medical men are just as strongly opposed to coffee drinking by sufferers from heart disease as in England they are opposed to tea-drinking in like circumstances. With regard to alcohol, its use as a daily beverage in an undiluted form, whether whisky or brandy, must be avoided as much as possible, and it must in any case be given only to patients for whom it is either indispensable as a stimulant or who have taken it for so many years that the sudden withdrawal of it might be dangerous in view of the possibility of collapse. In such cases the best plan is to give Rhine wine, Moselle, or Bordeaux which has been matured (*gelagert*) for eight or ten years, because in newer wines there is not only a larger proportion of fusel oil but experience also shows that there still exist too many fermentable substances which may very easily act injuriously. A tablespoonful of old Cognac brandy or whisky for some patients and an ounce of old sherry or port for others are almost indispensable as stimulants in cardiac weakness, but, as has been already said, if taken regularly they are capable of doing harm by producing cardiac irritability. It must here be remarked that a light or diluted wine agrees best with patients in Southern or Central Europe, whereas in Northern Europe, and especially in damp northern climates, a typical example of which is to be found in Great Britain, preference should, on the contrary, be given to Cognac brandy or whisky mixed with plain water and diluted until the proportion of the alcohol component is reduced nearly to that of moderately strong or even light wines. It is very necessary to forbid the addition of aromatic substances (such as ginger) to the alcohol, for simultaneous irritability of the stomach and heart often lead to loss of appetite and insomnia.

Moderate quantities of ordinary water or milk are by far the best beverages; next in order come tea or coffee, both of them with copious addition of milk. Patients for whom some fatty material is desirable may take cream either by itself or mixed with milk. Sterilised cream agrees better with many patients and it has the further advantage that it is not apt to produce flatulence. Cocoa deprived of its fat can be strongly recommended, whereas chocolate is seldom found to agree well, either on account of the quantity of sugar which it contains or from the slow digestibility of cocoa fat, and the vanilla present in it often has the effect of exciting the heart. The amount of fluid which may be taken at one and the same time will be referred to presently.

With respect to the second rule above given, it is of the first importance that the patient should avoid taking enough to cause any considerable distension of the stomach and that he should eat nothing which is difficult of digestion or tends to produce flatulence. It hardly requires to be explained in detail how indigestible substances remain too long in the stomach and prove injurious in consequence of the intimate connexion between the nerves of the heart and stomach. Too hearty eating or the ingestion of substances which produce flatulence may be harmful in three ways. 1. The diaphragm is pressed up against the lungs so that respiration is impeded and the shortness of breath and dyspnœa thence arising are well known to be peculiarly injurious to sufferers from heart disease. 2. The distended stomach also presses the diaphragm directly against the heart, forces the heart upwards and outwards, and displaces it in the direction of its base in such a way that its action can only be carried on with a greatly increased effort. 3. In like manner the intra-abdominal pressure is augmented and the abdominal vessels are compressed. The general result is that the heart is weakened and the cardiac muscle not unfrequently suffers in the struggle. For this reason effervescing beverages, whether carbonated water, champagne, or beer, for the most part disagree with patients who are the subjects of heart disease. In the case of beer, which is essentially the product of an artificially interrupted carbonic acid fermentation, the irritant properties of the extractives which it contains have also to be considered. Palpitation, shortness of breath, and conditions favourable to arterio-sclerosis are only too often met with as after-effects of effervescing alcoholic drinks.

As such patients must never eat until a feeling of repletion is induced the generally accepted system of having three meals a day is not advisable for them and it is much better to take small amounts of food at shorter intervals. If the patients are very weak or very ill it may be necessary for them to have food every two hours, but in general food every three hours is often enough, the last meal of the day being taken two and a half or three hours before bedtime, for if this is neglected the result will be a bad night or at least broken sleep, which is apt to be followed by general irritability and cardiac difficulties of many kinds. If in any way possible, each of the daily meals ought to have about the same nutritional value, because this, apart from its utility for digestion, conduces best to a uniformly beneficial effect on the heart. With regard to individual dishes it must in the first place be specially pointed out that it is not advisable to take considerable quantities of soup, because from the meat extractives which they contain soups in general, and either clear soups made from fresh meat or consommés in particular, are apt to produce a disturbing effect out of proportion to their nutritional capacity. Even soups of which any kind of solid addition (*Einlage*) forms a part have but little food value in proportion to their bulk, so that no more than a moderate quantity (only a few tablespoonfuls) can be recommended, for larger amounts interfere with the taking of really useful substances. New bread, whether brown or white, and freshly baked cakes are totally to be avoided, for they too often cause distension of the stomach and great flatulence. Toast, zwieback (a kind of rusk or "pulled bread") made without sugar, or the crust of rolls may, however, be taken. Among vegetables those are to be avoided which are either difficult of digestion or productive of flatulence, such as beans, peas, lentils, sauerkraut (preserved cabbage), red cabbage, leeks, onions, garlic, and celery. Potatoes in the form of purée or simply boiled in water are to be preferred to the less digestible baked potatoes. Turnips and carrots should be eaten only when fresh and young. In other respects, fresh and easily digestible vegetables cannot be too highly commended.

Animal food in its various forms, especially fish and poultry, are allowable, but it hardly needs to be said that certain indigestible articles included under the heading of fish and poultry are to be forbidden; eels, fat goose breasts, and goose-liver pies are examples of this kind. The same rule applies to rich sauces or mayonnaise, for salmon, lobsters, and crabs taken with these accompaniments are much more trying to cardiac patients than they otherwise would be. Oysters, mussels, and game (*Wildbret*) seldom do harm if fresh and prepared in a plain style, but highly smoked and salted fish or meat are objectionable because the great thirst which they produce easily tends to too much water being drunk. Among fatty substances butter and cream are by far the best, being easy of digestion. Fat bacon or the fat on a ham is, on the contrary, to be avoided on account of its indigestibility. The same rule applies to the hearty eating of fat. Oil generally does not agree well. Hot seasonings are injurious, red and black pepper being worst of all. They not only produce gastric irritation and great thirst but they have a specially harmful influence on the kidneys, an influence which in cases of weak heart may lead to conditions full of danger. Sausages, goulasch (a kind of meat stew), and salads containing pepper are therefore to be avoided. On the other hand, vegetable salads without hot seasoning, and particularly when made with lemon-juice, are permissible. There are many other seasonings or spices, such as nutmeg, mace, cinnamon, and vanilla, which are capable of doing harm by their tendency to quicken the action of the heart. The same thing may be said of horse-radish, which not only is apt to produce flatulence but also irritates the mucous membrane.

Easily digestible fruit stewed with the addition of a little sugar can be recommended, particularly on account of its favourable influence on gastro-intestinal peristalsis which is often so much impaired in heart disease that obstinate constipation is the result. For the same reason raw fruits which have to be peeled, such as apples, pears, apricots, peaches, and oranges, are often desirable. Grape-stones may act as irritants and should be removed before the fruit is eaten. On the other hand, raspberries, gooseberries, currants, bilberries, cranberries, pineapples, walnuts, Brazil nuts, and hazel nuts are to be prohibited, even when deprived of their membranous investment, for they may be injurious to sufferers from heart disease either from their indigestibility or from irritant substances which they contain. Only those kinds of food which are quite easily digestible can be recommended.

Ice in any form whatever, whether as iced drinks, fruit ices, or ice pudding, may not only cause gastrodynia in cardiac sufferers but, as I have often enough observed, is capable of directly producing congestion of the liver. This must be kept in mind even when the medical attendant is compelled to prescribe ice for the relief of vomiting. At the same time nothing should be either eaten or drunk while it is very hot, as excitement of the heart's action is easily caused in that way.

It is impossible to urge too strongly that sufferers from heart disease always require a mixed diet. With them the use of a diet consisting exclusively of meat very easily leads to the excretion of urine containing an excessive amount of dissolved solids and supersaturated with uric acid. I have even seen cases in which over-indulgence in animal food appeared to have been the principal, if not the only, cause of irritation of the kidney with hypertrophy and dilatation of the heart. An entirely vegetable diet is no less injurious. In order to make up the requisite amount of nutritive material, such food must be taken in considerable quantities, whereby the stomach is over-filled, and apart from this the supposition that arterio-sclerosis may be prevented by a dietary consisting of carbohydrates has been proved to be erroneous. Indeed, the very reverse of this is the fact, for it has been found that calcification of the vessels is encouraged by such a diet. Thorough comminution and copious insalivation of what is eaten are as important in diseases of the heart as in diseases of the stomach.

There is great diversity of opinion on the subject of tobacco-smoking. Many think that smoking when not carried to excess is quite harmless in heart disease and others consider that even in the cases in which the patients have found their symptoms aggravated by the use of tobacco the normal conditions are sure to be restored by a few months' abstinence. My experience leads me to regard tobacco with great disfavour, for I have seen quite a number of instances in which an excessive use of it was the only cause that could be assigned for the production of chronic heart disease and arterio-sclerosis. In tobacco there are many substances besides nicotin that may act injuriously and for this reason the partial removal of the alkaloid, a process to which tobacco has often been subjected in recent years, is no guarantee that much smoking may have no ill consequences. I therefore always recommend patients suffering from heart disease either to give up smoking altogether or else to indulge in it most sparingly, and in the latter case to use very dry tobacco and a long mouthpiece or pipe. A patient should always be informed that smoking is bad for his heart disease. Some years ago I had an opportunity of observing how dangerous opium smoking is for the heart, the patient being a woman, 22 years of age. At first a great smoker of cigarettes and afterwards of opium, she gave up the practice for a considerable time when placed under strict supervision but the first attempt at renewal of opium smoking brought on a severe attack of cardiac failure for the relief of which it was necessary to use camphor and hot applications over the heart.

As a result of observations made by Oertel, it has been very much debated whether sufferers from heart disease ought to drink at meal times or not. I have, however, already stated that the only condition which requires attention here is that the stomach shall not be overfilled and the principal advantage of not drinking at meal times is that the patients when they do not drink eat less that when they drink. In the treatment of fatty heart and general adiposity, as well as in plethora, it is better not to drink but when it is desirable that the patients should have plenty of food there is absolutely no reason for the prohibition of drinking at meal times, provided that the measures of precaution already described are complied with.

The majority of sufferers from heart diseases feel themselves better if they take gentle exercise in the open air for a short time after meals. Sitting still is apt not only to bring on palpitation and shortness of breath, but also to encourage the deposition of fat; it is therefore appropriate only when the latter condition is desirable or when the patients are too weak to take exercise after meals. In other cases exercise after meals is to be recommended. In heart disease it is evidently quite essential that the individual characteristics of the patients should be studied and that the treatment should be modified in correspondence with the symptoms.

The rules here given are for the most part applicable to uncomplicated cases of chronic heart disease, whether valvular defects due to a variety of causes, diseases of the myocardium, or cardiac neuroses. Heart disease associated with other morbid considerations, such as diseases of the stomach, intestines, liver, or kidneys, or with disorders of metabolism such as diabetes or gout, evidently requires special treatment. The same regimen is not suitable for a bedridden patient and for a robust individual who can walk for hours in the open-air, or for anæmic persons and for cases of plethora or corpulence. Strict regulation of the diet is requisite not only in the pre-compensation stage but also after compensation is fully established, for it is commonly recognised how easily errors in diet may either contribute to a renewal of cardiac troubles or may directly produce them. I have often seen this result follow the drinking of a glass of beer or champagne or the taking of a hearty meal. The practitioner should remember that the more carefully he manages his cardiac cases during the intervals between their attacks the better will he succeed in averting relapses and in contributing to the relief of his patients' sufferings and even to the prolongation of their lives.

Bad Nauheim.

THE PHYSIOLOGICAL ACTION OF THE NAUHEIM SPRINGS AND THE INDICATIONS FOR THEIR USE, CHIEFLY IN DISORDERS OF THE CIRCULATION.

BY PAUL C. FRANZE, M.D.

ALTHOUGH Nauheim owes its present popularity in no small measure to an increased prevalence of heart affections, there can be little doubt that its widespread reputation is essentially attributable to the intrinsic merits of its waters and to the balneological methods which have been evolved

by observation and experience. In Nauheim three springs, containing from 2·5 to 3·5 per cent. of the chlorides of sodium, lithium, and calcium, together with some iron, are available for bathing. Their most obvious attributes are their richness in free and loosely combined carbonic acid and their natural temperatures, which are respectively 29·5°, 32·5°, and 35° C. (i.e., approximately 85°, 90°, and 95° F.), temperatures which at once suggest themselves as suitable for bathing. From two of these springs three different types of bath are prepared and from one of them two types, the essential features of these baths being a greater or less proportion of free carbonic acid gas. For on the proportion of this gas, which can be graduated with precision, depends to a great extent the potency of the physiological action of the waters. The first and mildest type, the so-called thermal baths, contain least carbonic acid. They are obtained by admitting the water to large open reservoirs where, in contact with atmospheric air, the free carbonic anhydride escapes with a consequent precipitation of the calcium and iron salts which it held in solution. These salts colour the water yellowish-brown. With this bath we usually commence the treatment of cardiac cases. To the second type, containing a little more carbonic acid, belong the thermal-sprudel baths, obtained by conducting the water to subterranean air-tight tanks from which it is conveyed to bathing-tubs. This water is clear or slightly yellow owing to its having lost only a little of its carbonic acid gas. These baths are of an intermediate grade between the former and the effervescing baths. The third, the effervescing type, are known as the sprudel baths. They contain the full amount of carbonic acid with which the springs issue from the earth. The water is conveyed by pipes directly to each tub without the intervention of tanks or atmospheric contact. These baths are strongly effervescing, bright and sparkling, and clear as crystal. The most potent effect is attained by immersing the patient in a continuous current of this carbonic-acid-laden water. Clear brine baths, from which the carbon dioxide and the salts which it holds in solution have been removed by percolation through brush-wood, are also used at Nauheim. They contain some 3 per cent. of the chlorides and are prescribed with some measure of success as an adjunct in the treatment of rachitic, scrofulous and anæmic children. I do not propose to refer further to them in this paper.

On entering a Nauheim bath of natural temperature the following symptoms are observed. There is at the outset a slight sense of shuddering, soon, however, succeeded by a general sensation of warmth. In their earlier immersions cardiac patients occasionally experience a feeling of thoracic oppression which is, however, but transient and which disappears entirely in succeeding baths. In a sprudel, or effervescing, bath the body is soon completely covered with countless bubbles of carbonic acid gas. After ten minutes' immersion the patient's temperature, taken in the rectum, falls about 0·2° C. In five minutes more a further fall of from 0·1° to 0·2° is not infrequently observed. Hyperæmia of the skin supervenes to an extent dependent on the amount of carbonic acid and salts employed. On the patient quitting the bath and being rubbed down the glow becomes more marked; the pulse also becomes stronger, more regular, and usually, though by no means invariably, slower. The blood pressure is sometimes raised and sometimes reduced—a matter to which I shall presently revert—and respiration is easier. Ordinary bathers feel themselves refreshed but the more delicate patients occasionally experience a sense of lassitude, especially after their earlier baths. If a delicate patient at the outset takes a bath containing a high proportion of the gas, excitement, fatigue, and disturbance of the heart's action may ensue. These various effects produced by the baths are attributable to the stimulation of the skin by means of the salts, the carbonic acid, and the temperature of the water. The elements in the skin which respond to these influences are the terminations of the cutaneous sensory nerves and the capillary vessels.

The temperature of a bath is an important factor in the production of its general effect. At a temperature of about 2° C. below blood-heat the influence of a bath, save as a detergent, is practically *nil*. We term this temperature—35° C.—the "point of indifference." Should the water be warmer the temperature of the body is increased and a number of changes take place in the circulatory system which are usually undesirable and to which I need not advert as these higher temperatures are not prescribed at Nauheim. We only employ those below and up to the "point of indifference," which the Nauheim waters naturally possess. In baths of the latter kind the body loses heat and as our system has the tendency, and in large measure the capacity, to maintain its normal temperature, the consequence is increased production of heat. It is known that increased exhalation of carbon dioxide corresponds to this. Coincidently there is increased excretion of urea, proving that the metabolism of nitrogenous matter is also accelerated. The most obvious physiological explanation of this improved metabolism is that the peripheral nerves convey their stimulus to the spinal cord and sympathetic centres by which it is controlled. Next we notice changes in the circulation. On entering the bath there are acceleration of the pulse and contraction of the peripheral vessels of the skin and subcutaneous tissue. Internal congestion ensues. Soon, however, the contraction ceases, the superficial vessels dilate, the pulse becomes slower and stronger, and "reaction" is manifest. This also is due to reflex action, the stimulus being conveyed to the pneumogastric nerve centres which, in their turn, control the heart.

It is very important to remember that although these changes occur in a Nauheim carbonic acid bath which is but a few degrees below the "temperature of indifference," they are not induced in an ordinary fresh water bath, except at such low temperatures as would throw an absolutely impermissible initial strain upon a debilitated heart. This is a most remarkable feature of Nauheim baths and it is essentially attributable to the salts dissolved in the water and to the carbonic acid gas, for these ingredients intensify the stimulation of the skin and modify the action of the cold. The aggregate result is that in a Nauheim bath reaction supervenes much sooner and with greater intensity than is possible with ordinary fresh water. Although it is improbable that any of the salts completely permeate the skin it would appear that they are imbibed by the epidermis sufficiently for direct stimulation of the peripheral nerve terminations and capillaries of the corium. Imbibed by the epidermis the salts maintain their action for some time after the conclusion of the bath. The entire nutrition of the skin is thus increased, it holds a greater amount of blood, and its excretory functions exhibit a revivification which is more than transitory.

Tissue metabolism is accelerated and researches as to the physiological action of chalybeate baths rich in carbonic acid show that this gas chiefly promotes the metabolism of non-nitrogenous matter. This, of course, is especially applicable to the effervescing sprudel baths. The acceleration of tissue metabolism promotes the absorption of exudations in the joints, pelvic and serous cavities, and it is known that Nauheim baths are among the most efficient means of removing the sequelæ of rheumatism and gout, of serous inflammations, such as pleurisy and pericarditis, and of inflammatory conditions of the uterine adnexa.

Since the large majority of patients come to Nauheim for the relief of some affection of the heart or circulatory system I would advert especially to this class of cases. The effect of the mineral baths on the heart is twofold—namely, (1) the mechanical removal (by the "reaction") of obstacles to the circulation at the surface, and (2) the reflex action on the heart and blood-vessels generated by peripheral stimulation of cutaneous nerves.

[Dr. Franze here discusses at some length the physiology of the circulation and the part played by the vessels in the distribution of the blood. He then continues as follows.]

In cases of arterio-dilatation the powerful irritation of the skin by the ingredients of the water increases the tonus of the arteries by reflex action; whilst in the less frequent cases of vaso-motor spasm the excessive contraction is relaxed, the result of the baths in either case being a tendency to re-establish the normal optimum. The tension of the easily compressible pulse is better after the bath and the blood pressure rises in cases where it was previously abnormally low. On the other hand, there is decrease of blood pressure and of arterial tension when these have been abnormally high. Concomitant with these vascular changes the baths bring about, by reflex action, more vigorous contractions of the heart, the immediate result being more perfect emptying of the cardiac cavities. Thus is induced a gradual diminution of ventricular dilatation, progressing with prolongation of the treatment even to its entire removal. Now, the removal of dilatation is of paramount importance in all heart affections as it follows from the laws of hydraulic pressure that the heart is overstrained proportionately to its dilatation—viz., a pressure acting upon a fluid is distributed equally through the entire amount; if, therefore, the heart

contains just so much blood as it ejects normally at each stroke, it need only do so much work as is necessary in order to press its entire contents into the arteries; but should it be dilated and contain more blood it will have to do proportionately more work even to eject only its normal contents, the rest of its labour being wasted on the remaining amount of blood on account of the equal distribution of the pressure of the ventricular walls through the entire amount of blood contained in the ventricles.

As already stated, reaction sets in sooner and more perfectly in a Nauheim bath than with ordinary fresh water, and should its temperature be near the "point of indifference" reaction supervenes with rapidity. Such baths have almost solely a relieving influence on the heart. The lower the temperature the longer the period which precedes reaction, the cooler baths having therefore a preliminary stimulating effect which we utilise as an exercise for the heart. Thus, by regulating the temperature and also the carbonic acid and saline constituents we can achieve by these baths an exceedingly accurate dosage of relief or exercise for the heart, and the technical arrangements for effecting these gradations are of the most perfect type. I know of no other means by which relief and exercise for the heart can be for weeks administered with such absolute precision. It is, however, here expedient to mention that we usually combine the treatment with medico-mechanical gymnastics, resistance exercise, massage, and electrical treatment, including the use of the sinusoidal alternating current.

In selecting cases for Nauheim treatment it is important to bear in mind that less depends upon the cause of the disturbed circulation than upon its degree. The baths are equally indicated in valvular lesions, in muscular weakness with dilatation, in arterio-sclerosis, and in nervous heart complaints so long as the affection is not too far advanced and so long as the heart possesses that necessary amount of reserve-energy through the stimulation of which the power necessary for maintaining the circulation can be restored. Competent observers assure us that they have seen the valvular lesions of a recent rheumatic fever disappear through a course of the baths. Patients in whom suspicious cardiac signs succeed an attack of rheumatism are suitable cases for Nauheim, and those with valvular defects may with advantage take baths as a prophylactic while in a perfect state of compensation. I have seen very favourable effects in such cases where the dilatation underwent a reduction of from one to two inches during the course. Nauheim is also suitable for the earlier stages of non-compensation with slight dyspnœa during rest or only on exercise, slight œdema of the ankles, and a small degree of hepatic congestion. In the medium stages of non-compensation with marked dyspnœa, œdemata, and albuminuria the results cannot be foretold with certainty. Much depends on the patient's age and certain it is that in such cases digitalis gives better results with the baths than without them. For the more advanced stages with ascites and anasarca nothing is to be expected from Nauheim treatment. Especially favourable for Nauheim are simple muscular weakness and the earlier stages of dilatation such as too commonly supervene on influenza, enteric fever, and acute rheumatism and are so frequently attributable to alcoholic excess, over-exertion, anæmia, and chlorosis. Fatty heart accompanying general obesity is, as a rule, favourably influenced by baths, gymnastics, massage, and dietetic regulations, including the use of the water as a beverage. *Pari passu* with diminished dilatation we observe increased muscular vigour and loss of weight.

As regards arterio-sclerosis, it seems reasonable to assume that the resolving action of the mineral baths may have a favourable influence in incipient stages on the process itself. Such early diagnosis is, however, difficult and usually the patients come to Nauheim when such consequences as cardiac weakness and angina pectoris have begun to manifest themselves. In not too advanced stages the action of the baths is often very favourable. Patients feel considerable relief and the angina frequently vanishes, the effect being doubtless chiefly attributable to the removal of peripheral circulatory resistance. As a class these cases require more than ordinary precaution in grading the degree of effervescence. In the later stages of the disease this treatment is of no avail. Practical experience of the action of the waters combined with a knowledge of physiology will in most instances enable a correct selection to be made of the cases which are suitable for treatment at Nauheim.

Bad Nauheim.

CONTRIBUTIONS TO THE STUDY OF THE ACTION OF SEA-SNAKE VENOMS.[1]

PART I.

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AND
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MAJOR, I.M.S., ON SPECIAL DUTY FOR SNAKE VENOM RESEARCH UNDER THE ORDERS OF THE SECRETARY OF STATE FOR INDIA.

(From the Pharmacology Laboratory of the University of Edinburgh.)

THE only important contributions to the literature of the subject with which we are acquainted are those recently made to the Royal Society by Captain Leonard Rogers, I.M.S. Whilst acknowledging the value of these papers we desire to state that our work was planned before we saw them and has in all respects been independent of them.

The venoms used in this research were those of two species of sea-snakes: (1) that of Enhydrina Valakadien (*a*) expressed in Madras by Dr. P. P. Pinto from the venom glands of freshly killed large snakes and sent to us in the dry state, and (*b*) extracted by us from the dried glands of small snakes which had been collected by the same gentleman; and (2) that of Enhydris curtus prepared in the same way as the first mentioned specimen, of which, however, only a small quantity was procured for us by Dr. Pinto.

The minimum lethal doses of the various specimens of venom.—1 (*a*). Expressed Enhydrina Valakadien venom:—

M.L.D. for rats = 0·00009 gramme per kilogramme of body weight.
" for rabbits = 0·00006 " " " " "
" for cats = 0·0002 " " " " "

The minuteness of these doses proves that sea-snake venom is the most lethal of all substances the lethal power of which has been determined.

1 (*b*). Enhydrina Valakadien venom extracted by us from dried glands. This proved to possess a lethality rather less than half that of the expressed venom.

2. Expressed Enhydris curtus venom: The minimum lethal dose for rats was between 0·0005 and 0·0006 gramme per kilogramme. The minimum lethal doses for rabbits and cats likewise proved to be higher than those of the enhydrina venom. We mention this difference in lethality between Enhydrina and Enhydris venoms without laying stress on it, as we are unable to be certain that it was not due to some change which the enhydris venom had undergone.

Comparison of the relative lethality of Enhydrina and cobra venoms for various animals.—An active specimen of cobra venom was taken, the minimum lethal doses of which for rats, rabbits, and cats had been found to be 0·0005, 0·0006, and 0·010 gramme respectively per kilogramme of body weight of animal. Expressing the smallest minimum lethal doses in the case of each venom as the unit we find the relative lethality for the different kinds of animals to be the following:—

Cobra venom ... ... rats = 1; rabbits = 1·2; cats = 20.
Enhydrina venom ... ... rabbits = 1; rats = 1·5; cats = 3·3.

The difference in the cat-rodent relationship is especially suggestive of a marked difference in the physiological actions of the two venoms and the reversal of the rat-rabbit relationship is also of some significance in the same connexion.

Symptoms of sea-snake poisoning in animals.—In the main these symptoms resemble those of cobraism, but the dyspnœa is more urgent, probably because the heart is not directly affected by the venom as it is in cobraism. We have observed that lid-rise of the lower lid is a constant sign in Enhydrina poisoning, as it is in the course of poisoning by the venom of the cobra and krait. It appears to be produced by an elastic rebound of the lid, caused by paralysis of its depressor muscle, probably central in origin, and it is closely comparable with the ptosis met with in cobraised men and monkeys. Of the two points dealt with above, the first suggests a difference between the actions of cobra and Enhydrina venoms and the second a resemblance between their actions.

Methods of experiment employed.—These were: 1. Perfusion of the frog ventricle with solutions of Enhydrina

[1] Abstract of a paper read before the Royal Society on June 9th, 1904.

venom. 2. Perfusion of the vessels of pithed frogs with solutions of Enhydrina venom. 3. Kymographic experiments in which the blood pressure, respiratory movements, &c., were recorded and studied both before and after the intravenous injection of Enhydrina venom. The movements of the auricle and ventricle were also studied during life by removing a portion of the chest wall and attaching levers to the heart by hooks and silk threads. Venom was intravenously injected and the results were recorded and noted. 4. The state of the phrenic, sciatic, and vagal nerve ends was studied immediately on the occurrence of death in animals which had received various lethal doses of Enhydrina and Enhydris venoms. The secondary current was used for this purpose and the distance of the secondary from the primary coil, when a muscular contraction was observed, was noted and stated in millimetres. 5. The medulla oblongata of rabbits was exposed and Enhydrina venom was dropped upon the medulla at the region of the respiratory centre. Respiratory movements were recorded on a drum with the aid of a double stethoscope.

Summary of results.—1. Enhydrina venom has no direct action on the walls of the arterioles, or at least has no action in any strength of solution which could be present in the blood of a human victim of sea-snake bite.

2. Enhydrina venom acts directly on the isolated frog ventricle, producing a tonic and stimulating effect, but this action is produced only by very strong solutions (1 in 5000). The heart beat is quickened and the result is therefore similar to that produced by very weak solutions of cobra venom (1 in 1,000,000 or weaker).

3. By experimenting with the mammalian heart exposed *in situ*, we have clearly shown that Enhydrina venom has no direct action on the vagal cardio-inhibitory centre. This affords a striking contrast to the condition observed in cobra poisoning. In the latter case the powerful tonic and stimulant action of the venom on the heart muscle (or more probably on its nerve ends) is masked by equally powerful and direct stimulation of the cardio-inhibitory centre. In Enhydrina poisoning, on the other hand, the complete absence of cardio-inhibition leaves the feeble tonic action on the heart free to manifest itself, as appears to be displayed in several of our tracings. We cannot otherwise explain the increase in rate of the heart beats which we have not infrequently met with in our experiments.

4. Enhydrina venom has apparently no direct action on the vaso-motor centre. Rogers found that on the injection of a viperine venom, or of the venom of the banded krait (Bungarus fasciatus), into an animal a marked fall of blood pressure occurred which was of central origin. In an investigation made by one of us with Dr. W. C. Sillar and Dr. G. S. Carmichael (of the Materia Medica Laboratory, Edinburgh) it was found that a similar and powerful action is exerted by the venom of the common krait (Bungarus cœruleus). The absence of any such action by the venom of Enhydrina is therefore worthy of note.

5. The blood pressure curve in Enhydrina poisoning is a remarkably steady one, provided that moderate doses of venom are given and that care is taken to avoid the injection of large volumes of fluid into the blood-vessels. This is due to the fact that the blood pressure is exposed neither to the influence of the rival forces which act on the heart so strongly in cobraism nor to the direct vaso-motor changes with which we have dealt in the preceding paragraph.

6. The respiratory mechanism is that which is chiefly affected by Enhydrina venom. If large lethal doses are employed, such as Rogers appears to have confined himself to, respiration falls rapidly, and a considerable rise of blood pressure, asphyxial in origin, may precede death. The heart beat then quickly slows and blood pressure falls with corresponding rapidity.

Obviously, these are simply the phenomena of rapid asphyxiation. If, however, smaller doses of venom are employed no marked rise in blood pressure occurs. The ordinary level is maintained until near the occurrence of death; the beat then slows and the blood pressure falls. Here we have an expression of gradual cardiac failure brought about by slowly progressive asphyxiation. The absence in slow Enhydrina poisoning of the large asphyxial rises of pressure, which are so characteristic of the final stages of cobra poisoning, is readily explained by the fact that Enhydrina venom has no direct constrictive action on the walls of the arterioles, such as cobra venom possesses.

7. As to the part of the respiratory mechanism that is affected by sea-snake venom, the rapidity with which respiration is affected, both when venom is injected into a vein and also when it is applied directly to the medulla oblongata, leaves no room to doubt that the respiratory centre is directly acted on by the venom. On the other hand, we have shown that some degree of motor nerve-end paresis is constantly present in animals dying from the effects of subcutaneous injections of this venom. We have also emphasised the fact that, in experiments carried out by dropping venom on the exposed medulla oblongata, we have failed to kill animals through the respiratory centre with their motor nerve ends still undamaged. In this respect we have shown that Enhydrina venom differs in its action from cobra venom. It would therefore appear that in poisoning with Enhydrina venom motor nerve-end paresis plays a much greater part than it does in cobraism. It is not difficult to suppose that a blunting of the motor nerve-end mechanism, even though far from absolute, may seriously add to the embarrassment of a centre which has already been directly and gravely enfeebled. We hope to return to this and other points in a future communication.

In conclusion, we desire to express our sense of indebtedness to the India Office, to the Government of India, and last, but by no means least, to the Madras Government, for the assistance and facilities which they have given us in the carrying out of this research.

ON THE ACTION OF THE VENOM OF BUNGARUS CŒRULEUS (THE COMMON KRAIT).[1]

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THE only previously recorded work known to us on this subject was performed by Captain L. Rogers, I.M.S., and his results were published at the beginning of the present year. Experiments were performed by us in the pharmacological laboratory of the University of Edinburgh with the following results:—

1. We determined the minimum lethal dose of the dried venom for frogs and small mammals, rats and rabbits only being chosen, as our stock of the venom was very limited. We found that the minimum lethal dose for the frog was about 0·0005 of a gramme per kilogramme, for the rat 0·001 gramme per kilogramme, and for the rabbit the remarkably low dose of 0·00008 gramme per kilogramme.

2. We found that Calmette's antivenomous serum in quantities sufficient to protect rats against ten minimum lethal doses of cobra venom in the same quantities was quite powerless to protect these animals from similar doses of krait venom.

3. We studied the condition of various nerve terminals, both in animals that die after poisoning by krait venom and in nerve muscle preparations from the frog, and found that the integrity of these nerve ends was invariably involved at a comparatively early stage in the poisoning.

4. The blood was carefully examined and no evidence of ante-mortem clotting or intravascular hæmolysis was discovered.

5. We examined the action of krait venom when its solution was perfused through the isolated vessels and heart, respectively, of the frog. We found that this venom, while resembling in action that of cobra venom, differs greatly in the degree of constriction of vessels and enhancement of ventricular contraction produced. Cobra venom exercises an action in these directions many times greater than that of krait venom. (Cardio-plethysmographic tracings were shown.)

[1] Abstract of a paper read before the Royal Society on June 9th, 1904.
[2] On special duty for snake-venom research, under the orders of the Secretary of State for India.

6. Studying the manner in which the vital functions of mammals (rabbits, cats, and dogs) were influenced when exposed to the action of this venom we found that the vaso-motor centre was strongly affected, a suspension of the activity of this centre, as shown by the great splanchnic dilatation, rapidly ensuing after its transient stimulation. There were also indications of a feeble cardio-inhibitory action. The experiments and illustrative tracings likewise showed that death was brought about by destroying the activity of the respiratory centre. (Kymographic and plethysmographic tracings were shown.)

7. From these results the conclusion may be arrived at that while the symptoms produced by krait poisoning are similar to those of cobra poisoning, they differ so much in relative degree as to render it doubtful if they can properly be spoken of as identical.

A CASE OF CHRONIC STREPTOCOCCUS ENDOCARDITIS TREATED BY SERUM SPECIALLY PREPARED BY USE OF THE ORGANISM OBTAINED FROM THE PATIENT.

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THE success attending the introduction of antitoxic sera into therapeutics led to an expectation that equally good results might follow the use of bactericidal sera. As yet, however, these hopes can scarcely be said to be realised. Excluding the cases in which the disease may fairly be claimed to be sapræmic in nature and those in which the bacteriological evidence is absent or incomplete there remain very few, if any, in which the presumption is at all strong that a cure is to be attributed to the use of immune serum. Both to the clinician and to the student of immunity the question, How much of the recovery from septicæmia or pyæmia may fairly be credited to the serum used and how much to time and the patient's natural defensive mechanism, is beset with many difficulties. But since experience teaches us that in septicæmia a natural cure is rarely to be expected, the results of our researches into immunity being what they are we feel bound to give immunised sera a wide and prolonged trial in cases coming under our care. To report only our successes is calculated to give us a false notion of our advance in the matter of serum-therapy. To report our successes in cases the real nature of which is unknown can only lead to confusion.

There is no better instance at the present time of the fact that we can only expect any advance in treatment by using all the available methods which we possess in diagnosis. Forgetting this primary principle of our profession, we are prone to rush to the exhibition of a serum as soon as any "septic" case is presented to us. On the score of expense alone it is certain that we waste many litres of bactericidal sera, our patients' pockets and our hospital funds being the poorer in consequence. But the expense entailed to our methods of practice is much more serious. It is time that we stemmed the tide of this indiscriminate serum therapy.

The immune serum for which the best results have been claimed in the treatment of disease is the antistreptococcus serum. Its failure in many cases may be due to a variety of causes. One of these causes, and probably a very important one, may be that the serum employed is not immunised against the particular streptococcus causing the disease but against a different streptococcus. This consideration involves the question of the unity of the streptococcus as a pathogenic organism—a question which entails too many matters of a purely bacteriological nature to be entered into here. Suffice it to say that streptococci from different sources are often found to show such varied biological characters as to suggest that a serum which has been specifically immunised against one such organism may by no means prove to be immunised against another. To meet this difficulty there have been introduced "polyvalent" sera, obtained by employing streptococci from a variety of sources. But this modification can obviously only decrease somewhat the "hit or miss" character of the remedy.

The ideal serum for the treatment of any particular patient suffering from streptococcus infection must be one obtained by the use of the organism actually causing the disease in that patient, for this serum can alone be guaranteed to be specifically associated with the causal agent of the disease. To obtain this ideal serum we have but two alternatives open to us—either we must possess certain trustworthy tests whereby we can recognise the particular streptococcus obtained from the patient, so that we may choose a serum already at hand and produced by the use of that organism, or we must specially prepare the serum by the use of the very streptococcus which we have obtained in the course of our bacteriological diagnosis of the case. At present the first alternative is not possible, although we may hope that it will shortly become so. But even when these tests are established we shall have to wait until the various pathological streptococci are subjected to them before we can utilise the right serum, and we shall doubtless now and again encounter an organism for which no serum has hitherto been produced. The second alternative—that of preparing a special immune serum for the patient under consideration—is only practicable in cases where the duration of the disease extends over at least eight weeks, since this interval would seem to be necessary before the serum of a horse inoculated with a streptococcus is likely to contain antibodies of sufficient strength to make it of therapeutic value; nor does there seem at present to be any way of shortening this interval. Now cases of general streptococcus infection of sufficiently long duration to promise any success from this method of treatment are not common, yet they exist in fair numbers, especially in the form of ulcerative endocarditis. The case reported in this article is an instance; the disease lasted over six months. When the nature of the infection was discovered by means of a blood culture the various antistreptococcus sera on the market were tried (Pasteur Institute, Lister Institute, Burroughs, Wellcome, and Co., and Parke, Davis and Co.) but without success. A specific immunised serum was then obtained from two animals by the use of the patient's particular streptococcus, and this serum was freely used.

The case is recorded because I believe it to be the first of its kind, if not the first of any kind, in which treatment has been by serum thus specially prepared. Another reason for recording the case is that the treatment formed a somewhat crucial test of bactericidal serum therapy, and its failure makes it highly probable that there are important factors in such cases or in the production of the immune serum of which we are at present quite ignorant. Reference will be made later to some of the questions suggested by the case and its treatment.

Clinical history of the case.—The patient, an unmarried woman, aged 25 years, had been well until August 8th, 1903, when she consulted her medical attendant for shortness of breath and chilliness of the extremities. She was somewhat anæmic. No heart murmur was heard. She was seen from time to time until the 30th, when she was found to be in a very nervous condition, with tachycardia, exophthalmos, marked tremors, anæmia, and a soft blowing bruit in the region of the apex of the heart, well conducted into the axilla. There was no thyroid enlargement. Graves's disease was diagnosed and the patient was confined to bed. The chief complaint at this time was of flying pains in the limbs. There was no rise of temperature until Sept. 16th, when the thermometer registered 101° F. in the evening. From this day until the fatal termination of the illness six months later fever was present continuously.

On Oct. 1st the cardiac bruit was noticed to be much harsher and on the night of the 2nd there was a rigor. On the 3rd there was a second rigor and the cardiac bruit was found to be absent. On the 4th and 6th further rigors occurred, the temperature at one time reaching 104°. During these days marked changes in the loudness and quality of the bruit was noticed. The spleen was impalpable, the urine was natural, and there was no œdema. A diagnosis of ulcerative endocarditis following on Graves's disease was made. On Nov. 10th I saw the patient in consultation with Dr. C. G. B. Kempe of Salisbury. The diagnosis was confirmed and a blood culture and leucocyte count were carried out. On the 17th I saw her again. A few small scattered petechiæ had occurred over the neck and the chest, rendering the prognosis more grave.

On Jan. 6th, 1904, I saw the patient for the third time. The petechiæ had increased somewhat in number but were at no time very numerous. On Feb. 16th Dr. Kempe noted the presence of a soft but distinct murmur over the pulmonary area of the heart with fresh crops of petechiæ. On March 7th an attack of dyspnœa, with signs of consolidation

at the base of the left lung, suggested the presence of an infarct at this situation. At midday on the 22nd the patient died somewhat suddenly. The total duration of the illness was thus over seven months and the duration of the fever was over six months. The form of the fever for the great part was remittent, the temperature ranging between 101° and 103·5.[1]

The leucocyte count.—On Nov. 10th this was 14,000 per cubic millimetre, and at a second count on Jan. 5th it was 12,000. This absence of a marked leucocytosis is not uncommon in chronic cases of ulcerative endocarditis, even when of streptococcal origin.

The blood culture.—On Nov. 10th five cubic centimetres of blood were withdrawn from a vein of the arm with aseptic precautions and three broth and three sloped agar tubes were inoculated. On the second day growth appeared in the broth and on the agar and this was found to be a streptococcus in short chains. One cubic centimetre of a 24 hours' subculture in broth killed a mouse in two days. Dr. M. H. Gordon had in hand at this time an investigation into the streptococcus group of organisms for the Local Government Board, with the object of obtaining differential tests if such existed and for this purpose he was trying the effect of streptococci on a medium containing one or another of a series of carbohydrates. A number of examples of streptococcus pyogenes tested in this way were found to conform to a definite type. I am indebted to Dr. Gordon for a similar examination of the streptococcus obtained in the blood culture from this patient; the organism was found to show a distinct variation from streptococcus pyogenes. Moreover, the organism was found to change neutral red, a chemical test not yielded by streptococcus pyogenes.[2] Cultures obtained on one occasion only from the patient's throat, though they yielded a variety of streptococci, gave no organism fulfilling the same series of reactions as that obtained from the blood. Nor could I prove on either of two occasions that the streptococcus of the blood was being excreted in the urine.

The serum treatment.—1. Various sera on the market. These were given as soon as the result of the blood culture was known. All the "polyvalent" sera obtainable were given a good trial in turn. After the second dose of Pasteur Institute serum the temperature fell and there was no rise for over 48 hours. This was the only occasion in the course of the illness when the fever abated for more than six hours. But this apparently good result was not maintained even though the dose of serum was much increased. The Lister Institute serum and the sera made by Messrs. Borroughs, Wellcome and Co. and by Messrs. Parke, Davis and Co. produced no result. This treatment was continued for seven weeks. 2. Specially prepared sera. On Jan. 9th Dr. W. Dowson kindly placed a donkey at my disposal at the Wellcome Physiological Research Laboratories, Brockwell Hall, and himself undertook the necessary inoculations. Increasing doses of living cultures of the streptococcus were given at intervals of from one to nine days, followed at the end of eight weeks by two large doses (200 and 250 cubic centimetres) of cultures digested in horse plasma with one week's interval. Following each injection enormous swellings were observed at the seat of inoculation, often involving the whole of one side of the trunk. The animal was bled before the first inoculation and at the end of the first week, as well as on four occasions further on in the process of immunisation. The object of the first two bleedings was to obtain normal serum from the same animal furnishing the immune serum, it being thought advisable to first use this as a control, in case positive results were obtained with the immune serum. Previously to this, however, the patient was injected with 30 cubic centimetres of human serum, obtained by bleeding a brother, as it was possible that the absence of sufficient complement might be in a measure responsible for the protraction of the disease. The injections at this time therefore comprised the following series: normal human serum, normal donkey's serum, immunised donkey's serum removed at intervals up to nine weeks from the beginning of inoculation. The treatment was continued over a period of more than two months, during which time some 550 cubic centimetres of serum were given. The great bulk of the serum was administered subcutaneously or intramuscularly. At no time did the temperature chart suggest that there were any good effects from the treatment.

Shortly after Dr. Dowson had commenced the inoculations at Herne Hill Dr. George Dean of the Lister Institute kindly undertook to treat a horse with the streptococcus with a view to obtaining immune serum. Four injections of 10 cubic centimetres, 20 cubic centimetres, 50 cubic centimetres, and 100 cubic centimetres of living cultures in horse serum bouillon were given, the horse being bled three weeks after the last injection was made. After each dose there was a marked reaction at the seat of inoculation with a rise of temperature. The serum yielded by this horse was likewise given a good trial but with equally disappointing results.

General and drug treatment.—When the nature of the case was established open-air treatment was adopted as far as possible and at one time some benefit appeared to result from this expedient. Besides this and a carefully chosen nourishing diet with stimulants (chiefly as port wine) the following drugs were prescribed: quinine in five-grain doses every four hours, sodium sulphocarbolate up to 15 grains every four hours, and formaldehyde in doses of from two to four minims by the mouth frequently. Each of these drugs was given a full trial in turn.

I have already indicated the main points of interest connected with this case. Not allowing for factors at present unknown to us, the possible explanations of the failure of the serum treatment seem to be these: 1. The infection was a mixed one, the streptococcus only having grown in the blood culture. This I think unlikely. Cases of ulcerative endocarditis due in part or in whole to other organisms than the streptococcus usually run a much more rapidly fatal course. Moreover, this explanation includes the notion that the streptococcus present was little or not at all pathogenic, a notion not supported by general experience or by the animal experiments carried out with the organism. Unfortunately no post-mortem examination could be obtained in order to decide this question. 2. Neither of the sera specially obtained possessed the "immune body," or possessed it in too small a degree to be of service to the patient. If this were so the chance of any serum, not specially obtained, containing the immune body needed for the treatment of a particular case must be much more remote than we at present imagine. 3. The patient's blood was deficient in the "complement" necessary to fix the "immune body." This accident seems to be an unlikely one at any time. But it was with the view of meeting it that the normal human serum was used. It would doubtless have been a reasonable thing to continue the injections of human serum for a longer time than was done. But this treatment is as yet scarcely within the range of practical therapeutics.

Whether the prolonged course of the disease was in any way due to the treatment by serum and, if so, to which serum it was due, are questions that cannot be answered.

In conclusion, I must express my thanks to Dr. Kempe, without whose constant and valuable coöperation the prolonged and systematic treatment could not have been carried out; to Dr. Dowson at the Wellcome Laboratories, who responded most promptly to my suggestion concerning a special serum; to Dr. Dean for similar assistance at the Lister Institute; and to Dr. Gordon for the part of the bacteriological investigation mentioned above.

Harley-street, W.

[1] As the temperature chart measures some 20 feet in length it cannot be reproduced here.

[2] Centralblatt für Bakteriologie, Band xxxv., No. 2, p. 271.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTE ON THE VALUE OF KADER'S OPERATION OF GASTROSTOMY.

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SURGEON AND LECTURER ON CLINICAL SURGERY, WESTERN INFIRMARY, GLASGOW; FORMERLY EXAMINER IN SURGERY AND CLINICAL SURGERY IN THE UNIVERSITY OF EDINBURGH.

HAVING performed this operation four times recently, I think it right to record my satisfaction with it, both as regards rapidity and ease in carrying out the details and its efficiency as a means of feeding the patient and insuring no escape of fluid from the stomach even when coughing.

The usual incision for gastrostomy is made. Having opened the abdomen, four retaining loops of silk are passed

through the peritoneum and placed equidistantly round the opening, pressure forceps being applied to each. This prevents the peritoneum sinking down when the stomach is withdrawn. Three inches of stomach, as near the cardiac end as possible, are drawn out; the peritoneum and aponeurosis are carefully stitched to the stomach, using a Reverdin's curved needle; the stomach is then opened and a No. 12 soft catheter is introduced and fixed in position by a fine suture which passes through the whole thickness of the stomach wall and is tied tightly round the catheter. The stomach is now invaginated by pressing upon the firmly secured tube and a purse-string suture is introduced a quarter of an inch below the opening into the stomach. This is drawn up and tightened round the tube; a second purse-string suture is introduced half an inch below the first, the stomach being further invaginated and the stitches tightened around the tube; a third purse-string is introduced half an inch below the second if necessary and tied round the tube. In this way a valve is formed inside the stomach so that the tube can be easily passed in, and when removed the valve comes together and completely closes the opening. The skin incision is united with silkworm gut. After the wound is healed the patient soon learns to feed himself. Having first chewed the food he passes it into the tube which is inserted into the stomach. Those interested in this subject will see two good plates illustrating the operation in Kocher's recent work on Operative Surgery translated by Stiles.

Glasgow.

A CASE OF INJURY TO THE BACK FOLLOWED BY ALL THE APPEARANCES OF SYRINGOMYELIA.

BY CHARLES MACKIE BEGG, M.B., L.R.C.P. EDIN.,
HOUSE SURGEON, BOROUGH HOSPITAL, BIRKENHEAD.

A MAN, aged 37 years, was struck on the back by a sack of corn which fell from a height of over 30 feet. He was admitted to the Birkenhead Borough Hospital on June 6th, the day of the accident. There was severe bruising over the back of the neck and chest. No irregularity of the vertebral column could be discovered and there were no symptoms pointing to any injury of the spinal cord. The patient was a very powerfully built man and stated that he had previously enjoyed perfect health.

Recovery went on apparently uninterruptedly till June 12th when he complained of some weakness in the arms and legs. On examination the knee-jerks were found to be brisk. On the 20th there was marked wasting of the muscles of the thenar and hypothenar eminences of both hands and the grasp was distinctly weak. The legs were becoming spastic and there was some diminution of the heat and cold and pain senses on both sides. His condition became worse, the spasticity of his legs increased, and the wasting of the muscles of the forearms and hands became very marked. On the 30th his condition was as follows. In the upper extremities there was marked wasting of the small muscles of both hands and of the flexors and to a lesser degree the extensors of the forearms. The pronators and supinators were very slightly, if at all, affected. The biceps, triceps, and deltoid were slightly wasted but not nearly to the same extent as the muscles of the forearm. The affected muscles reacted sluggishly to electricity. Both biceps- and triceps-jerks could be elicited. There was no impairment of any of the senses in the arms. In the lower extremities the muscles were spastic, both knee-jerks were much increased, the ankle and patellar clonus was marked, and Babinski's plantar reflex was present in both feet. With great difficulty the patient could raise his legs about three inches from the bed. There was slight delay in the conduction of tactile sensations. The muscular sense was unimpaired. Sensation to pain was diminished in both legs and the difference between heat and cold was not appreciated. There was some weakness of the abdominal muscles, the patient being quite unable to sit up in bed. The bladder and rectum were unaffected.

The further progress of the case was as follows. On July 8th the patient could sit up in bed without assistance and his grasp was slightly stronger. There was some fibrillary twitching of the tongue and his speech was not so distinct as before. There was no improvement in the wasted muscles of the hand.

The case presents most of the symptoms and signs of syringomyelia. The unusual features are the rapidity of the onset and the severity of the affection of the legs. The lesion was evidently in the seventh and eighth cervical and first dorsal segments of the cord. Is it possible that the cause might be a small hæmorrhage in the grey matter, producing destruction of the trophic centres for the muscles of the arms and by its pressure causing degeneration of the crossed pyramidal tracts? If so, the hæmorrhage or the resulting myelitis must have cut off the conducting tracts of the heat and cold and pain senses from the lower limbs. It is possible that the patient may have had a dilatation of the central canal previously. This may have caused no symptoms till the blow on the back produced effusion or slight hæmorrhage into the cavity.

I am indebted to Dr. W. R. Floyd, under whose care the patient was, for permission to use these notes.

Birkenhead.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

ST. GEORGE'S HOSPITAL.

NINE CONSECUTIVE CASES OF PERFORATED GASTRIC ULCER TREATED BY SUTURE, IRRIGATION, AND DRAINAGE.

(Seven under the care of Mr. G. R. TURNER and two under the care of Mr. T. CRISP ENGLISH; eight recoveries.)

FOR the notes of the cases we are indebted to Mr. Crisp English.

CASE 1.—The patient, a woman, aged 24 years, was admitted to hospital under the care of Mr. Turner on Nov. 28th, 1900, with the following history. At 9 P.M. on the previous evening she was frightened by a mouse and immediately after was seized with acute epigastric pain followed by vomiting. On admission she looked extremely ill and was in great pain. The temperature was 99·5° F. and the pulse was 120. The abdomen was rigid, distended, and tympanitic. Acute tenderness was present in the epigastrium. Liver dulness was absent.

Operation.—Median laparotomy was performed above the umbilicus. Gastric perforation was found on the anterior surface of the greater curvature near the œsophageal end. There were much foul fluid and lymph in the peritoneal cavity. The perforation was closed and a counter opening was made below the umbilicus. Three drainage-tubes were inserted. On the fourteenth day after operation thrombosis occurred in the left calf; convalescence was otherwise uneventful and the patient went to the Wimbledon Convalescent Home on Jan. 9th.

CASE 2.—The patient was admitted to hospital under the care of Mr. Turner on March 5th, 1901, with a history of acute abdominal pain for two days. The pain had been sudden in onset and was situated in the epigastrium; the abdomen had become distended and vomiting had occurred twice. On admission the patient, who was sent by rail about 100 miles to hospital, looked very ill, complaining of great pain and thirst; the marked abdominal face was present; the temperature was 97° F. and the pulse was 130. The abdomen was greatly distended, chiefly in the lower part; it was immobile, very tender, and rigid. Liver dulness was diminished. There was moveable dulness in the flanks.

Operation.—A median incision was made. Intense general peritonitis was found. Escape of large quantities of fluid and free gas led the way to a large perforation on the anterior surface of the stomach close to the œsophageal end. As the patient's condition was very bad a gauze plug was passed to the perforation and the peritoneal cavity was flushed out with hot saline solution; drainage-tubes were inserted and the wound was sutured. Death occurred a few hours later.

CASE 3.—The patient, a girl, aged 17 years, was admitted to hospital under the care of Mr. Turner on Feb. 17th, 1902. The following history was given. She had had pain and vomiting after food for four months. On Feb. 15th after a small meal she was suddenly seized with acute pain in the epigastrium and vomited several times. The pain continued until the time of admission but no further vomiting occurred. On admission she was found to be a very anæmic girl. The temperature was 103° F. and the pulse was 140. The abdomen was very tender all over, especially in the left hypochondrium. It was slightly rigid but not much distended; there was fair movement on respiration; splashing sounds were heard. Tubular breathing and dulness were present over the lower part of the left lung.

Operation.—A median epigastric incision was made. There were much straw-coloured fluid and free gas in the peritoneal cavity. A small perforation was found near the œsophageal end of the stomach on the posterior surface close to the aorta; there were many adhesions around. Gauze packing was passed to the perforation. A second opening was made in the hypogastrium; much foul fluid was sponged out, with general irrigation with weak boric lotion. Drainage-tubes were passed into the pelvis and into each flank. There was much bronchitis during the week after operation; thrombosis occurred in the left calf during the third week. The patient was discharged from hospital on the thirty-second day.

At the present time she is in excellent health and has had no return of gastric symptoms. In September last she was seen for superficial varicose veins of the leg (following the thrombosis) and was ordered an elastic stocking.

CASE 4.—The patient, a female, aged 25 years, was admitted to hospital under the care of Mr. Turner, on Nov. 12th, 1902. She had had pain after meals and vomiting for three weeks and had been treated as a medical out-patient on this day. Whilst waiting at the dispensary for her medicine she was suddenly seized with violent pain and became collapsed; vomiting occurred. She gave a history of some indigestion for years but had never had hæmatemesis. On admission she was pale, collapsed, and sweating; the abdomen was boardlike and immobile; there was exquisite tenderness and the liver dulness was absent.

Operation.—This was performed about four hours after perforation. A median epigastric incision was made. A chronic ulcer was found on the anterior wall near the cardiac end; it was a small ragged perforation. Gastric contents were present in the peritoneal cavity and especially in Douglas's pouch. Closure was effected with a double row of sutures. Two drainage-tubes were inserted. A suprapubic incision was made and general irrigation was carried out by means of a large tube placed in Douglas's pouch. Recovery was uneventful.

CASE 5.—The patient, a married woman, aged 23 years, was admitted to hospital under the care of Mr. Turner on Jan. 5th, 1903, with the following history. On Jan. 4th there was slight pain and she vomited. At midnight there was sudden violent pain in the epigastrium with collapse. At 5 A.M. she vomited once; the pain continued. She had been constipated since the 3rd. She had had indigestion for 18 months; she had also had hæmatemesis on three occasions, the last time being four weeks before. On admission she was anæmic and looked very ill. The temperature was 102° F. and the pulse was 120. The abdomen was distended below the umbilicus. There was slight epigastric movement only. There were general tenderness and rigidity. The liver dulness was normal.

Operation.—This was performed 17 hours after perforation. A median incision was made above the umbilicus; extensive peritonitis was found. There was a perforation on the anterior surface one and a half inches below the centre of the lesser curvature. The perforation was closed with Lembert sutures. A counter opening was made in the lower abdomen. The pelvis contained much turbid fluid. General irrigation was carried out; tubes were inserted into each flank and into the pelvis; gauze was passed down to the site of the perforation. Convalescence was uneventful. The patient was seen two months later. She had had no return of the gastric symptoms. She was fatter and healthier. The scars were sound.

CASE 6.—The patient, a vanman, aged 23 years, was admitted to hospital under the care of Mr. Turner on April 25th, 1904, with the following history. He had had pain in the right side for one week. At 10.30 A.M. on the day of admission there was sudden acute pain as if he had been stabbed with a knife; this occurred whilst he was getting into a van; there was no vomiting. He took some brandy and a druggist gave him some medicine for the pain (? morphine). There was no history of dyspepsia or hæmatemesis. On admission the patient walked into the surgery looking very ill. There were tenderness and rigidity over the right side of the abdomen, especially over the right iliac fossa and also on a level with the umbilicus. Pain was referred to a point one inch above McBurney's point. Respiratory movements were catchy; liver dulness was normal. There was much bronchitis. In the evening the temperature rose to 103° F. The pain was still severe; there was no vomiting.

Operation.—This was performed at 8.30 P.M. (ten hours after perforation). Owing to the obscurity of the symptoms and signs Mr. Turner decided first to examine the appendix. Incision was made through the right semilunar line. A quantity of free fluid was found; there was no free gas. The omentum was inflamed. The appendix, which was very long, was lying in a little pool of purulent fluid; it contained fæcal material and was removed. Further search showed lymph and matted omentum in the upper part of the abdomen. A median epigastric incision was made. A round clean-cut perforation, one-third of an inch in diameter, was found near the pylorus close to the great curvature. Closure was very difficult owing to the friability of the gastric wall; about eight Lembert sutures were used. A second incision was made in the mid-line above the pubes. The pelvis was found to be full of gastric fluid. Drainage-tubes were inserted and general irrigation was performed. A gauze plug was passed to the site of the perforation. Severe bronchitis followed. On the 28th some gauze was removed. On the 29th albumin, water, and beef-tea were given by the mouth. On the 30th smaller tubes were inserted. On May 4th all tubes were removed. The patient was discharged on May 23rd.

CASE 7.—The patient, a female, aged 22 years, was admitted to hospital on May 29th, 1899, under the care of Dr. Rolleston. The following history was given. Whilst walking in the street she was suddenly seized with violent pain in the left hypochondrium; she was at once carried into hospital and shortly after admission vomited twice. She had suffered from dyspepsia for about three years and had had two attacks of pleurisy. On admission she had the facies abdominalis. There was severe pain in the epigastrium and left shoulder. The temperature was 99·2° F. and the pulse was 128. The abdomen was slightly distended and moved but little on respiration; it was tender and rigid all over, especially in the epigastrium. Liver dulness was diminished. Expectant treatment was adopted. The abdomen became more distended, the pulse rose to 160, and the pain remained severe. The patient was very restless and vomited twice. Mr. Turner operated on the following morning.

Operation.—The abdomen was opened in the left hypochondrium. Purulent fluid and stomach contents were found to be escaping from the posterior wall of the stomach. The actual perforation was not seen. Gauze packing was inserted. A counter opening was made in the loin and two drainage-tubes were put in. Pleurisy occurred on the left side on June 8th; convalescence was otherwise uneventful. The patient was discharged on July 26th.

CASE 8.—The patient, a woman, aged 32 years, was admitted to hospital under the care of Mr. Crisp English on the evening of Jan. 25th, 1904. She had had dyspepsia for 18 months. Hæmatemesis had never been present. The pain had been worse for three weeks but there had been no vomiting. At 9 A.M. on the 25th, one hour after breakfast, the patient had sudden violent pain in the epigastrium with the sense of something giving way. There was much nausea but no vomiting. The pain had become diffused. On admission the patient was thin, looking ill and flushed; her eyes were sunken. The temperature was 101·6° F. and the pulse was 88. The abdomen was retracted; general rigidity and tenderness were present. The pain was acute and referred to the left side of the epigastrium. Liver dulness was normal.

Operation.—This was performed 12 hours after perforation. An epigastric incision was made through the left rectus. There was no escape of free gas. Much gastric fluid was seen with gas bubbles. The perforation was found two inches from the œsophageal end of the stomach on the anterior surface and just below the lesser curvature. There was much friable tissue around. The perforation was closed with a double row of sutures and a piece of

omentum was sewn over. A second incision was made above the pubes. Large quantities of turbid fluid were found in the pelvis. General irrigation was carried out with drainage-tubes. Recovery was uneventful. The patient was sent to the convalescent home on the thirtieth day.

CASE 9.—A woman, aged 27 years, was admitted to hospital under the care of Mr. Crisp English during the night of March 25th, 1904. As history, it was stated that at 12.30 A.M. she woke up feeling very faint, having severe pain in the right hypochondrium and hypogastrium. There was no vomiting. She was seen by Dr. H. R. Fuller shortly afterwards and sent at once to hospital. She had suffered from dyspepsia for three months, this being especially bad for the three days before admission. On admission she was anæmic and looked extremely ill. The extremities were cold. The temperature was 96·4° F. and the pulse was 78. Pain was present in the epigastrium and right shoulder. There were general tenderness and rigidity of the abdomen, mostly in the lower part. Some distension was present below the umbilicus. Liver dulness was absent.

Operation.—This was performed five and a half hours after the perforation occurred. An incision was made through the upper part of the left rectus. Free gas and gastric fluid immediately escaped. The perforation was readily found on the anterior surface one inch from the pylorus; it was clean cut and of the size of a threepenny piece. This was sutured and a fringe of omentum was sewn over it. A second incision was made in the hypogastrium. Much gastric fluid was found in Douglas's pouch. General irrigation was carried out with drainage-tubes. Recovery was uneventful. The patient was sent to the convalescent home on the twenty-sixth day.

Remarks by Mr. TURNER.—All the cases with the exception of the leaking subphrenic abscess (Case 7) were treated in the same way. The ulcers when found were first of all sutured as rapidly as possible without paying undue attention to the non-inclusion of the mucous membrane or carrying the suture for any distance beyond the limits of the perforation. In nearly all the suture was subsequently strengthened by a few Lembert stitches. Each case, except the one referred to above, was treated by free irrigation, warm sterilised water or weak boric lotion being used, *after* provision had been made for drainage, not only at the seat of the wound but in the suprapubic region and the flanks, and this irrigation was continued until the outflowing fluid was absolutely clear. The peritoneal cavity has been irrigated in this way by as much as 14 or 16 pints. Irrigation was designedly omitted in Case 7 (leaking subphrenic abscess); the contaminated parts, however, were cleaned by simple sponging. Irrigation, where there is any localised collection of foul septic pus, on account of the danger of dissemination is not to be recommended.

Drainage-tubes as large as the middle finger (usually three in number) were inserted: (1) above the pubes, (2) down to the seat of the ulcer, and (3) in one or both kidney pouches. In the case where the appendix was the seat of a fæcal concretion and was removed a drainage-tube was passed through the right linea semilunaris.[1] In nearly all the cases the suprapubic drainage disclosed a pelvic collection of peritoneal fluid and stomach contents.

Only one of the perforations was not sutured; that one was on the posterior surface of the stomach close to the œsophageal end, in the immediate neighbourhood of the aorta; the anatomy of the surrounding parts was much obscured by adhesions and inflammatory changes, and it was deemed safer to treat the case by gauze packing.

It is not claimed that the subsequent drainage had much to do with the success of these cases but the incisions made for this purpose most undoubtedly allow at the time of the operation a complete and thorough searching out of any little peritoneal pouch or pocket that might otherwise escape irrigation and has largely contributed to the eventual recovery of the patients. The one patient who died had come a long way from the country and was practically moribund at the time of the operation. All the eight cases in which there was any chance of recovery have recovered.

Mr. English's cases (8 and 9) were treated in the same way with the trifling exception that an omental graft was used to help to close the perforation.

[1] Since writing the above I have had a successful case of perforated duodenal ulcer, in which there was also appendicitis, treated in the same way and which has recovered.

BRISTOL GENERAL HOSPITAL.

A CASE OF TUBERCULOUS ULCERATION OF THE INTESTINES CAUSING MULTIPLE STRICTURE, ATTENDED BY MELANCHOLIA; PERFORATION; PERITONITIS; DEATH.

(Under the care of Dr. J. MICHELL CLARKE.)

FOR the notes of the case we are indebted to Dr. A. Rendle Short, house physician.

The patient, a man, aged 29 years, was admitted into the Bristol General Hospital on Jan. 7th, 1904, complaining of pain in the stomach, sickness, and constipation of three years' duration. He stated that previously to this he never had any illness and had not had any cough. His parents and brothers and sisters were all living and well, and there was no disease in the family. He was married but had no children. Three years previously he began to have attacks of sharp pain in the abdomen when he was overtired, so severe as "to double him up." The pain was situated just below the umbilicus. This had continued ever since and was at the time of admission worse than before. He had had more or less pain every day. During the last 12 months it had been worse after food, especially solids; it was not markedly relieved by vomiting and was worse when the bowels were confined. He had also been suffering from attacks of vomiting for the same length of time, chiefly after solid food; usually about half an hour after a meal but sometimes immediately. The bowels had been costive and for one month had only been opened by enema; previously to this they were opened every other day. He had also suffered from flatulence. The motions contained no mucus; they had contained blood but he had piles. They had been black but never tarry (he had been taking medicines, probably bismuth). He had never had any hæmatemesis. There was no jaundice or hæmaturia. Three years ago he weighed 9 stones, now he weighed 7 stones 10 pounds. He had been very depressed of late.

On admission the patient was pale and ill-nourished, with a very melancholy expression. His appetite was poor and he slept badly. The tongue was clean and moist. There was no fever. The heart and lungs were normal except that the apex beat and first heart sound were feeble; the pulse was soft. The abdomen was moderately distended, especially in the epigastrium. No masses or tumours were felt. The liver and spleen were normal. There was no ascites. Peristaltic movements were visible in the intestines. There was some gurgling all over the abdomen. Nothing abnormal was felt per rectum; there was no ballooning of the rectum. The motions were hard, scybalous, pale, and contained no mucus or blood. The urine contained no albumin or sugar. The patient was kept in bed on a light diet and given saline aperients, belladonna, and salol. Hypnotics were necessary to procure sleep.

The further progress of the case was as follows. On Jan. 18th the patient complained of but little pain but chiefly of having lost his memory and of inability to concentrate his attention or to read; when questioned he almost gave way to tears. The bowels were opened only by enema; there was no change in the character of the motions. The temperature was rather irregular, occasionally rising to 99·5° F. or even 100° at night. No more peristaltic movements in the abdomen were seen. The patient had only vomited once or twice. On the 25th it was noted that he was very miserable; he said that he could not remember anything and entreated that his pulse should be felt because it was so weak. He prepared the following note for the visiting physician: "Doctor,—My mind and memory are quite gone. I cannot read; directly I read a sentence I forget it. ..... I cannot think of a single thing to say and if anyone says anything to me I don't understand what it is about. ..... I am losing every sense I possess—sight, hearing, memory, taste, feeling. ..... Pains and sickness returning. As soon as I see anything to eat I feel sick. I can't sleep. ..... Bowels very, very loose; the last time I had a motion with a lot of blood. ..... It is awful. Have pity on me, doctor, and send me away to die among my own. ..... It has taken me two and a half hours to write this." The motions had been loose and one was streaked with blood, probably from the piles, but there was no blood present in the others. On

Feb. 12th he was a good deal better mentally. He had several attacks of diarrhœa, with intervening constipation, but no blood, pus, or mucus was passed. He was sick after most articles of food now. His temperature was as before. He was treated with high-frequency currents until vomiting returned. On the 29th he was better mentally and was only sick occasionally; he often had diarrhœa. An examination was made under chloroform but nothing definite was felt in the abdomen. He seemed very weak and was losing weight; six pounds were lost in a week.

The patient went on in this condition, gradually getting weaker and thinner, for about a month. The stools were loose and there were occasional diarrhœa and sickness. The abdomen gradually presented more evidence of disease, consisting of slight general distension, some rigidity of the recti, and a feeling of increased resistance or thickening about the intestines, chiefly in the umbilical region. These signs became more marked towards the end. There was no ascites. He was very apathetic and did not complain of anything. It was thought probable that he had some abdominal tuberculous mischief and the use of tuberculin was suggested, but the man seemed too ill for injections to be given. At 6 A.M. on March 27th Dr. Short was called to see him as he had become speechless and pulseless and lay with his legs drawn up slightly groaning. The abdomen was more distended, especially in the epigastric region, and universally tender. It did not move with respiration. There was no shifting dulness in the flanks. The liver dulness had become reduced to one inch instead of three inches as previously. There was no vomiting or diarrhœa. The temperature was 95° and the extremities were cold. In spite of stimulant treatment he did not rally and died at noon.

Necropsy.—At the post-mortem examination the body was found to be much emaciated and the skin was dry and scaly. The heart and lungs were normal except that at the apex of the left lung there was a small radiating scar with slight thickening of the pleura; there was no caseous matter. There was general peritonitis, with universal injection of the intestines, lymph flakes, and soft recent adhesions. The peritoneum contained one and a half pints of semi-purulent fluid. In the small intestines there were numerous ulcers, especially affecting the ileum. About six of these were markedly constricted; three would only just admit a lead pencil and the bowel was dilated above them. Several of the ulcers were very large, up to one inch in breadth. They ran transversely. The edges were thickened and raised, sloping off on the sides. The floor of many of them was dense and firm owing to cicatricial tissue. In some, however, it was very thin and in two a small perforation had occurred. In several a few tubercles were seen in the serous coat in the periphery. The stomach was markedly dilated. The large intestine showed chronic catarrh. The mesentery was thickened; the mesenteric glands were large, red, firm, and in two cases calcified but not caseous. The liver, spleen, kidneys, pancreas, testicles, and brain were practically normal.

Remarks by Dr. MICHELL CLARKE.—On admission there was obviously a slight degree of obstruction and peristaltic movements of the intestine were visible, though not very marked, through the abdominal walls. These symptoms were accompanied by pronounced nervous ones which took a typical hypochondriacal form. A few days after admission the signs of obstruction became less and the peristaltic intestinal movements disappeared, never to return in the further progress of the case. Simultaneously the hypochondriacal symptoms gradually developed, so that for some time the patient could not be considered as mentally sound. The mental symptoms and the appearance of the patient were at this time those of hypochondriacal insanity. Vomiting now returned with pronounced anorexia and considerable persuasion was required to make the patient take his food. At one time it was thought that forced feeding would have to be resorted to.

The vomiting, emaciation, and anorexia, in the subsidence of the more marked intestinal symptoms which were present on admission, might now, perhaps, have been attributed by anyone who saw the patient at this stage for the first time to the nervous condition except for two signs—namely, the constant presence of liquid stools and the gradual appearance and increase of a feeling of thickening or resistance to pressure in the abdomen. Later in the case there was the remarkable clearing up of the mental condition, whilst the signs of abdominal disease became quite evident and unequivocal. The illness was one well illustrating the not infrequent coexistence of abdominal disease with symptoms of hypochondriasis and the very great difficulty there often is in cases of hypochondriasis in which the patient's feelings and thoughts are centred on his stomach in arriving at a positive conclusion as to whether there is or is not some abdominal disease in the background.

Other points of interest are the apparently primary origin of the ulcers, unless indeed, the scar at the apex of the lung represented old healed phthisis, and the strictures and perforation due to tuberculous ulceration.

Medical Societies.

OBSTETRICAL SOCIETY OF LONDON.

Complete Inversion following Traction on the Cord after a Normal Delivery.—Exhibition of Specimens, &c.

A MEETING of this society was held on July 6th, Dr. EDWARD MALINS, the President, being in the chair.

Dr. ROBERT BOXALL recorded a case in which Complete Inversion followed Traction on the Cord after a Normal Delivery in a Young Primipara. The uterus was pushed back into the vagina. An unsuccessful attempt at re-inversion was made within a few hours and again 48 hours after delivery. Some retained portions of placenta and membranes having been removed and the parts cleansed it was decided to defer any further attempt for a few weeks. Douches were used night and morning. Six weeks later the uterus was found to have regained its normal position. It seems probable that this occurred during the third week, as at that time there were a certain amount of abdominal pain, free red discharge, and pyrexia for a few days which could not be otherwise accounted for. The extreme rarity of spontaneous re-inversion and the action of the douche as a factor in causing reposition were remarked upon.—Dr. A. L. GALABIN and Dr. HERBERT R. SPENCER discussed the case and Dr. BOXALL replied.

Dr. A. H. N. LEWERS showed a specimen of Fibroids and Carcinoma of the Body of the Uterus removed by panhysterectomy from a patient 45 years of age. A lump had been noticed in the abdomen for six years. For two years there had been a constant vaginal discharge but no severe loss. Pain in the lower abdomen had been quite a recent symptom. On vaginal examination a blood-stained offensive discharge was seen issuing from the os uteri. The vaginal portion was normal. The sound passed eight inches. At the operation the body was removed with the intention of leaving the cervix but on cutting through the cervix at the level of the internal os malignant growth (which had not previously been suspected) was found in the lumen. The cervix was consequently removed. Dr. Lewers urged the advisability of opening up the body of the uterus immediately after removal in all cases where fibroids existed, for in his experience malignant growth in the endometrium is not very rarely a complication of uterine fibroids.—Dr. SPENCER preferred total hysterectomy to amputation for fibroids.—Dr. AMAND J. MCC. ROUTH did not consider that cancer was relatively so frequent in fibroid uteri as in cases where no fibroids were present. He regarded metrorrhagia after the menopause in a woman known to have had a fibroid as strong presumptive evidence of cancer having developed. In such cases he advocated panhysterectomy.—Dr. GALABIN thought that fibroids predisposed to cancer and that in all cases of fibroids in which continuous or irregular hæmorrhage could not otherwise be cured in a moderate time the uterus ought to be removed.—Dr. MARY A. D. SCHARLIEB regarded panhysterectomy for fibroids as the best operation both for immediate and for remote results.—Dr. LEWERS, in reply, said that he thought it best in operating for fibroids to leave the cervix if healthy at the time of operation.

Dr. A. W. SIKES showed three Skull-caps of Children illustrating Variations of the Posterior Fontanelle.—Dr. BOXALL remarked on the frequency with which deviations from the normal type of posterior fontanelle occurred.

Dr. WALTER W. H. TATE showed a specimen of Fibromyoma associated with Cystic Disease of the same Ovary removed by operation from a patient, 71 years of age. For two years there had been pain and progressive enlargement of the abdomen and occasional vaginal hæmorrhage. The tumour consisted of two distinct parts: a solid portion of

the size of a fœtal head which appeared to grow in the wall of the cystic tumour and a cystic portion, the wall of which was inflamed and lined by lymph. The solid portion proved to be a fibromyoma with necrotic changes towards the centre.—Mr. ALBAN H. G. DORAN referred to a similar case which he had published.

Mr. DORAN and Dr. H. WILLIAMSON showed a specimen of Necrobiotic Uterus associated with Recent Pregnancy removed from four to five months after delivery from a patient aged 38 years. The specimen was discussed by Dr. ROUTH, Mr. A. C. BUTLER-SMYTHE, and Dr. J. S. FAIRBAIRN, and Mr. DORAN replied.

Dr. FRANK E. TAYLOR showed a specimen of Fibroma of the Ovary removed by Mr. J. Bland-Sutton from a sterile married woman, aged 50 years, who complained of severe dyspareunia of many years' duration. The right ovary showed no sign of disease. The tumour sprang from the outer pole of the left ovary. It was more or less pedunculated, densely hard and lobulated, with a smooth and glistening white surface. It measured two and one-sixth by one and three-quarter inches and weighed two and a half ounces.—Dr. FAIRBAIRN agreed that this was probably an example of the rarest form of ovarian fibroma springing from the tunica albuginea and not from the ovarian stroma.—The specimen was referred to the pathological committee.

Dr. M. S. PEMBREY and Dr. G. BELLINGHAM SMITH exhibited five Fœtal Sacs which had been found free in the abdominal cavity of a rabbit. They were seven or eight centimetres in length, four or five centimetres in width, and two centimetres in thickness. The largest contained four fœtuses, the development of which showed that they were at full term. The sacs were formed of the fœtal membranes thickened by fibrinous exudate; the placenta could be seen but its maternal surface had been covered over by a similar deposit. The amniotic fluid had been absorbed and the fœtuses were compressed. The abdomen of the mother showed well-marked signs of former peritonitis, but there was no evidence of placental attachment. The uterus on careful examination showed evidence of a former rupture in the shape of an old scar at the junction of the two uterine horns. The fœtuses had evidently been retained for at least eight months before the animal was killed, for during the time it was kept in the laboratory it produced four normal litters. The rupture was probably caused by the impaction of the four fœtuses which were found in one sac and which showed signs of torsion. The case supports the view of Mr. Bland-Sutton that such fœtal sacs are not due to extra-uterine pregnancy but to rupture of the uterus and extrusion of the sacs into the abdominal cavity.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases.—Associated Transposition of Viscera and Cerebral Tumour.—Metastatic Gonorrhœal Conjunctivitis.—Suppuration in the Frontal Sinus.

A MEETING of this society was held on July 6th, Professor JOHN CHIENE, the President, being in the chair.

Mr. H. J. STILES showed a girl, aged seven years, after operation for Cyst of the Mesentery. Though chiefly situated in the epigastric region the cyst extended below the left costal margin. It was firmly united to the muscular coat of the intestine and was formed of fibrous tissue covered with peritoneum.

Dr. EDWIN BRAMWELL showed a man, aged 34 years, suffering from Paralysis of Accommodation in the Right Eye; neither pupil reacted to light; the left contracted fairly well but the right not at all on accommodation. A very careful examination had failed to elicit any further evidence of disease. The patient had had syphilis six years previously. For several years past he had been using the watchmakers' eyeglass for six hours a day and always with the right eye. The case was of interest in connexion with Edinger's theory of the etiology of tabes dorsalis. Edinger supposes that syphilis acts as a predisposing cause and that superadded excessive function determines the special neurons to be affected in different cases.

Dr. W. ALLAN JAMIESON showed a case of Hypertrophic Acne Rosacea after treatment. The hypertrophied tissue was simply shaved off with a razor under the action of adrenalin and cocaine. The result was very satisfactory. He also showed a case of Lupus of the Hard Palate treated by Radium. The lupus had existed for five years and had involved the nose, the upper lip, the gums, and the hard palate as well as the axilla. X-ray treatment had cured the face and the arm but it had little effect on the palate. Radium bromide inclosed in a tube with an aluminium window was applied for 22 hours to the palate with the result that an entire cure followed.

Mr. F. M. CAIRD showed a man after removal of a large Renal Tumour (nephroma). The patient also suffered from heart disease, ascites, and bronchitis. His condition was very precarious. An enormous tumour was enucleated through a lateral incision. It was an adrenal tumour which had engulfed the whole of the kidney. Mr. Caird also showed a woman, aged 54 years, after removal of a large Carcinoma of the Transverse Colon under local anæsthesia. Bruits were present over every valve of the heart; ascites and bronchitis were present as well as diarrhœa and pronounced anæmia. A tumour as large as the fist was removed and end-to-end suture was performed, the patient only experiencing a dragging sensation during the operation. There was no evidence of heart failure.

Other cases were shown by Mr. J. W. DOWDEN, Dr. R. A. FLEMING, Mr. J. M. COTTERILL, and Mr. A. A. SCOT SKIRVING.

Dr. W. G. SYM showed Axenfeld's instruments for use in excision of the lacrymal sac and Priestley Smith's balance for testing the points and edges of cataract knives.

Sir THOMAS R. FRASER read notes of a case of Complete Transposition of the Viscera with Cerebral Tumour and other Pathological Conditions. He said that already in 1888 he had described such a case discovered during the life of a female patient who suffered from cardiac valvular disease. The present case, however, differed from the former in that the malady from which the patient suffered ended fatally, so affording fuller opportunity for the study of the malformation. When first admitted to the Edinburgh Royal Infirmary the patient was a well-nourished man, aged 24 years, rather stunted in growth (8 stones 7¾ pounds in weight and 4 feet 11 inches in height), with a round bullet-shaped head and stolid expression. The primary cause of his admission was a long-standing pyuria with headache. His father died at the age of 72 years from bronchitis and his mother died from phthisis at the age of 62 years. Three brothers and five sisters were alive and healthy. There was no family history of nerve disease nor had the patient suffered from venereal disease. He was unmarried and until a few years ago had followed the occupation of an iron moulder, while latterly he had been employed in a warehouse. Both occupations necessitated his lifting heavy weights. He had not suffered from any serious illness until the present symptoms began to show themselves now several years ago. Some eight years previously he had fallen from a swing and had sustained some injury to the head, though the effects soon wore off. His recollection of this injury was very imperfect. A supernumerary thumb was present on the right hand springing from the metacarpo-phalangeal joint. Six metacarpal bones were present in this hand. Physical examination showed that there was a transposition of the thoracic and abdominal viscera and the patient himself was aware of his abnormality. To determine if the transposition involved the lowest portions of the alimentary canal as well as the higher two pints of warm water were injected into the rectum, with the result that the sigmoid flexure became dull to percussion in the right flank. A presystolic mitral murmur with accentuation and reduplication of the second sound was also discovered and there was congenital loss of the sense of smell. This anosmia was a hereditary or family defect as it was present in the mother as well as in a brother and two sisters. He was again admitted to the Royal Infirmary in January, 1904. At this time the suboccipital pain was more severe than formerly and sensations of formication, numbness, and tingling in the legs were present. Tactile sensibility was somewhat blunted over the left side; the vision was much impaired, so much so that with the left eye ability to distinguish light rom darkness alone remained. Death took place on the fourteenth day after admission. His temperature throughout was always below the normal and before death it was 97°F. The post-mortem examination confirmed the diagnosis of complete transposition of the viscera. The cæcum had the fœtal characteristics of conical shape and small size and these characteristics

were also manifested in the unusual length and upright position of the appendix vermiformis. Pyelitis was also present. In the brain at the level of the lateral ventricle a translucent rounded tumour of about the size of a large marble was found which gave a complete explanation of the symptoms present. The heterotaxy of the viscera involved not only the important organs but also all the underlying organs and structures, as bronchi, blood-vessels, and nerves in the thorax and the pancreas, duodenum, blood-vessels, and nerves in the abdomen. Dr. Richter published in 1884 a collection of 40 cases, of which 24 were examined after death. Of the latter 17 exhibited complete heterotaxy. In only one was the subject left-handed and cardiac lesions existed in six of the 24 examined after death.

Dr. SYM read a report of two cases of Metastatic Gonorrhœal Conjunctivitis. He pointed out that in the gonorrhœal conjunctivitis produced by direct infection the characters were those of an intense purulent ophthalmia with great swelling of the eyelids, affecting one eye at first, with abundant discharge of pus and great danger of severe ulceration of the cornea. In the metastatic form, on the other hand, the discharge was somewhat thin mucoid fluid, there was very little swelling indeed, if any, and the iris or the cornea might be affected, but only to a very unimportant degree relatively; the attack was apt to come on along with joint symptoms and in persons who had been most careful to avoid the risk of direct infection. The first patient was a young man who had acquired gonorrhœa three months previously; he had practically quite recovered under treatment in about two months, but the discharge from the urethra again began, this time spontaneously (it was not a re-infection) and almost at the same time several joints became affected, and well-marked conjunctivitis came on with fairly abundant discharge. There was, however, very little swelling of the tissues; neither was the symptom at all comparable in degree to that present in a case of direct infection. The irides were slightly injected also. The left ankle and wrist were affected by synovitis and to a less degree the right wrist also. There were at the moment no facilities for bacteriological examination. The other patient was a young man whose gonorrhœa (a first attack) was of four weeks' duration; it had been treated from the first and was never very bad. Conjunctivitis had existed for three days before Dr. Sym was consulted and was not severe at all; the discharge contained no pus and there was no great injection of the globe. In two or three days several joints began to be affected one after another. Bacteriological examination showed very few organisms indeed and it was with the greatest difficulty that a few gonococci could be identified. The disease appeared to be rare and in some even of the latest text-books was not mentioned at all. A very useful paper on the subject was read by Dr. van Moll of Amsterdam at the Utrecht meeting of the International Ophthalmological Congress in 1899. He had met with six cases occurring in three individuals; the symptoms observed by him were precisely similar to those now described. He, Parinaud, Morax, Sattler, and Lichtenstein have all had cases in which no gonococci whatever were found; indeed, in this disease, as in rare instances of other forms of conjunctivitis, cases have been examined in which no germs of any kind were discoverable in the discharge. The most probable explanation of the disease was that it was due to the toxins generated by the gonococcus, but another theory, founded upon the frequency with which staphylococci were found, was that the original urethral mischief was due to a mixed infection of gonococci and staphylococci and that the former were unable while the latter were able to penetrate the unbroken epithelial surface. Morax has succeeded in producing a precisely similar form of inflammation by introducing into the conjunctival sac a dead culture of gonococci, a fact which seems strongly to support the toxic theory.

Dr. A. LOGAN TURNER read a paper on the Operative Treatment of Chronic Suppuration in the Frontal Sinus. He said that many operations had been devised but whatever might be the technique of the operation performed there were two principles underlying the various methods of procedure. First, opening the sinus through its anterior wall, curetting the cavity, and draining into the nose—an operation associated with the name of Ogston-Luc; and secondly, obliteration of the sinus by the removal of the anterior bony wall of the cavity only or of its anterior and inferior walls. Evidence was then brought forward to show that opening and draining the sinus constituted in a large number of cases an unsatisfactory procedure. Statistical tables were shown illustrating the failures that had occurred in the hands of different surgeons and a table was given showing how much more frequently death had followed the operation of opening and draining the sinus than when the obliteration method had been carried out. The obliteration operation was then considered and the better results thus obtained were demonstrated. The question of comparative disfigurement in the two operations was discussed and illustrated by results of operative interference. Finally, the Killian operation was described, its merits were discussed, and the hope was expressed that it might be recognised as an improvement in dealing with these cases.

WINDSOR AND DISTRICT MEDICAL SOCIETY.—A meeting of this society was held at the Guildhall, Windsor, on June 29th, Mr. W. B. Holderness, the President, being in the chair.—Mr. W. A. U. Thomson showed an extreme case of Cretinism in a male, aged 19 years, who was the sixth child of a family of ten children, the other nine being healthy. He had the appearance of a backward child seven or eight years of age. The case had been under the care of Mr. Hastings Gilford of Reading.—Dr. F. J. Hathaway showed three cases, one of them being an example of Charcot's Disease of the Knee in a male, aged 50 years. The joint was distended with fluid and well-marked symptoms of locomotor ataxy were present.—Dr. Clive Riviere read a paper on Conditions simulating Pulmonary Tuberculosis in Children. After speaking shortly of acute tuberculosis and tuberculous broncho-pneumonia, Dr. Riviere passed on to consider those varieties of pulmonary fibrosis and bronchiectasis which simulate phthisis in later childhood. Phthisis, he held, was rare in childhood but bronchiectasis and fibrosis were perhaps commoner than was generally admitted. Whooping-cough was the commonest factor in the production of the slighter forms, the cough and bronchitis leading to bronchiectasis which in some instances became permanent. The most marked cases were usually the result of broncho-pneumonia (especially when complicating whooping-cough), croupous pneumonia, or pulmonary collapse. It was the apical cases which tended to simulate phthisis but even the basal cases might give rise to doubt. The prognosis of chronic apical disease in children was remarkably good, partly because a considerable proportion of such cases was not tuberculous.—Dr. Hathaway read notes of a case of Ruptured Tubal Gestation. The patient, who was under the care of Dr. H. Overy, was aged 35 years, had been married 13 years, and had had no children. She had missed her periods for three months and during the last ten days of the pregnancy she had had attacks of bleeding from the vagina with pain in the lower part of the abdomen and back. The onset of violent pain with collapse was quite sudden. Vaginal examination showed the cervix uteri to be soft and the os not dilated. Dr. Hathaway opened the abdomen below the umbilicus and fluid blood was found in the peritoneal cavity. The uterus was enlarged, and attached to the right broad ligament was a mass of the size of a hen's egg which proved to be a typical gestation sac situated in the ampullary portion of the Fallopian tube. The broad ligament was transfixed close to the uterus and securely ligatured in three pieces with silk, then the mass with the ovary was removed, and the uterus and stump of the broad ligament were allowed to drop back into the pelvis. The patient was rather collapsed after the operation but soon rallied satisfactorily and the subsequent progress of the case left nothing to be desired.

OPHTHALMOLOGICAL SOCIETY.—The last ordinary meeting of the session was held on July 9th, Mr. John Tweedy, the President, being in the chair.—Dr. George Coates gave a lantern demonstration on the Pathology of Thrombosis of the Central Vein of the Retina. He showed preparations from five cases. In four of these an organised thrombus was found in the central vein; in three of them complete obliteration of the vein in a portion of its course had occurred from this cause; and in one of them the manner of re-establishment of the lumen by the accession of collaterals from the trabeculæ of the nerve was well shown. In the fourth case canalisation and not obliteration of the thrombus had occurred. In the fifth no thrombus was found, probably because the optic nerve was cut longitudinally in the usual manner and not transversely as was desirable when a lesion

of the central vessel was suspected. He also dealt with the changes found in the retinal vessels of these cases—namely, (1) endothelial proliferation; (2) thickening of the connective tissue of the walls; (3) hyaline degeneration (a change superimposed on the last); and (4) secondary thrombosis. Various combinations of these changes might be found both in arteries and veins. The use of Weigert's elastic tissue stain in researches on vessel changes was also illustrated.—Dr. Hermann Knapp (New York) commented on the ophthalmic appearances which were of such great value in prognosis and which could be seen with such remarkable distinctness, such as the white artery with its least little thread of blood, the white retina in its track, and the scotoma corresponding in the patient's field of vision. He recalled an exactly similar instance in which for a distance equal to three-quarters of the diameter of the disc one vessel showed all these changes while later they entirely disappeared, the scotoma vanishing as the retina became red again. The consequences of endarteritis supplied one of the most important chapters in ophthalmology and neurology. He was accustomed to warn patients who showed these changes of their liability to apoplexy unless they simplified their mode of life and diet. In one case where the warning was neglected the patient returned in three weeks with right hemiplegia but subsequently recovered and was now living on a spare diet. This applied also to Bright's disease with retinal changes. Meat and alcohol must be avoided.—Card specimens were shown by Mr. R. Marcus Gunn, Dr. R. D. Batten, and Dr. E. J. Smyth.

Reviews and Notices of Books.

A Manual of Medical Jurisprudence, Insanity, and Toxicology. By HENRY C. CHAPMAN, M.D., Professor of Institutes of Medicine and Medical Jurisprudence in the Jefferson Medical College of Philadelphia. Third edition. With 64 Illustrations and 4 Plates in Colours. London, Philadelphia, and New York: W. B. Saunders and Co. 1903. Pp. 329. Price 8*s.*

THIS work is probably better known in America than in England. The fact, however, that this is the third edition since the book was first published in 1892 is sufficient evidence that the efforts of the author have met with due appreciation. Dr. Chapman, as "coroner's physician of the city of Philadelphia," has had a large practical experience in forensic medicine and is therefore able to refer to many cases which have come under his own observation. He has also the power to express his opinions in a brief but lucid manner, so that although the manual is not a large one nevertheless it contains all the main facts of which it is essential that a student should be aware when presenting himself for examination. In describing the method of conducting post-mortem examinations in medico-legal cases Dr. Chapman quite rightly insists on the importance of establishing the *corpus delicti;* the neglect of such a precaution has occasionally led to serious legal difficulties. The remarks on "identification" are too curtailed and might well be amplified in future editions. The chapter on the examination of blood stains contains a full description of the technique which should be employed in order to ascertain whether certain stains are due to blood or to some other fluid. The attempt to distinguish between human blood and that of some animal is generally attended with failure but Dr. Chapman refers to the "serum test" which has recently been suggested. We agree with his conclusion that it is doubtful whether even the presence of blood could be satisfactorily established by the "precipitum" test with the kind of material suspected to be blood that is usually submitted to the medical expert for examination, and in the event of that test proving the presence of blood it is still more doubtful whether the differentiation between animal and human blood could be established to the satisfaction of the court.

The medico-legal aspects of wounds, burns, scalds, cold, and starvation are all briefly considered, as are also the other subjects which must of necessity find a place in a text-book on medical jurisprudence. Dr. Chapman properly considers that the subject of insanity has so extensive a range as to render it impossible within the limits of a small work to do more than to indicate its salient features and to dwell more especially on those points which particularly come under the notice of the medical jurist. The portion of the book dealing with toxicology gives a description of those poisons most frequently met with. If an account of the rarer ones is required it would be necessary to refer to one of the larger works dealing with this subject.

As a small treatise on medical jurisprudence Dr. Chapman's manual may be favourably recommended. It is in no sense a "cram-book," neither does it contain such detailed descriptions or discussions as are to be found in the more elaborate publications, but a much larger amount of information is contained in it than would appear by a cursory glance through its pages.

System of Physiologic Therapeutics. Edited by SOLOMON SOLIS COHEN, M.D. Vol. VII.: Mechanotherapy and Physical Education. With 229 Illustrations. London: Rebman, Limited. 1904. Pp. 420. Price 12*s.* 6*d.*

THE present volume, the seventh of that excellent therapeutic series which is under the general editorship of Dr. S. S. Cohen, is concerned with a branch of therapeutics for which it is difficult to find an adequate title. Perhaps it would have been impossible to find a better title than the one which has been adopted—namely, "Mechanotherapy and Physical Education." At any rate, this description conveys the suggestion which is required by the character of the work—namely, that the medical treatment described is in no way concerned with drugs and that the surgical treatment is unconnected with the knife.

As would naturally be expected, a very considerable part of this volume is devoted to the subject of massage, its principles, methods, and applications, and this part of the work, which represents about a quarter of the whole volume, is from the pen of Dr. S. K. Mitchell who, as lecturer on massage in the Philadelphia Orthopædic Hospital and Infirmary for Nervous Diseases, has had wide practical experience of his subject. In the wording of the directions supplied for carrying out the various forms of massage no trouble has been spared to insure simplicity and exactness of statement and there is hardly a phase in the manipulative procedure which is not further elucidated by excellent illustrations. It is impossible in a short account of this contribution to do justice to the thoroughness with which the work has been completed or to indicate the large amount of ground covered. Dr. Mitchell is naturally an enthusiast with regard to this physical method of therapeusis. We cannot help thinking, however, that his readers will be disappointed if they expect always to meet with the success which it would be gathered from reading his account is to be anticipated from the skilful application of even the best methods of massage. In the second section, written by Dr. Mitchell, exercise as a remedial measure is described; from the practitioner's point of view this part of the book will be found particularly valuable for the purposes of reference, for all the better known methods are described and their advantages and disadvantages are reviewed, while the diseases which are benefited by particular systems of exercise are arranged in a sufficiently methodical manner.

To the second half of the volume Dr. L. H. Gulick has contributed a brilliant, though somewhat theoretical, article on Physical Education. He treats the whole subject on the broadest basis and on philosophical lines. He insists from a consideration of our ancestral history and of the conditions of our present environment that exercise is necessary for our

health and for our comfort. He further insists that the whole tendency of modern civilisation is to deprive us of inducement to exercise our muscles and to substitute temptations for the expenditure of nervous energy. "The conditions of human life," he says, "in civilised countries have changed more since the development of the steam-engine than they had for thousands of years previously." Again, recognising the fundamental truth that form depends on function, he points out the very serious consequences which this deprivation of exercise has had, and is having, on the physical structure of our bodies. Passing from the general to the particular, Dr. Gulick describes how the physical development of our bodies may best be attained and what exercises to employ to secure the best results. The whole of this article is, indeed, well worth reading. More practical, but hardly so interesting, are the chapters by Dr. J. K. Young on Orthopædic Apparatus, by Dr. H. A. Wilson on Corrective Manipulation in Orthopædic Surgery, with a well-illustrated account of Lorenz's bloodless method of reduction of congenitally dislocated hips, and by Dr. Walter L. Pyle on the Physical Methods employed in Ophthalmic Therapeutics. The last-named article is exceedingly well done and it is very suggestive of the advantages which properly adjusted exercises may confer on the development of the eye in its normal function and consequently on its structural formation. The correction of squint by stereoscopic exercises without surgical interference is, indeed, one of the striking examples of the success of mechanical methods as opposed to ordinary cutting operation. The many new mechanical methods, of which this is but a single example, which have recently swelled our list of therapeutic measures justify the publication of a volume on the subject of treatment without drugs or the knife.

Guide to the Analysis of Potable Spirits. By S. ARCHIBALD VASEY, F.I.C., F.C.S., &c. London: Baillière, Tindall, and Cox. 1904. Pp. vii.-87. Price 3*s.* 6*d.* net.

THIS work comprises within a small compass all the essentials connected with the analysis of spirits and shows how from the results obtained the analyst may deduce an idea as to the origin of any sample which he examines. The book is divided into ten chapters and an appendix the first and second chapters and the last deal with generalisations.

Chapter III. deals with Methods of Analysis and these, generally speaking, are based upon the French official methods, which it is pointed out are not always beyond scientific reproach although most of the work which has been done upon the subject has been executed by Frenchmen according to French official methods and published in the French language. So many analyses of potable spirits have been published that there is at the present time very little trouble in finding out whether a spirit is *not* that which it purports to be, though, on the other hand, it is possible that the more astute dishonest dealer may so "doctor" his spirit as to make it conform to *analytical* standards. Chapter IV. is concerned with the Estimation of Aldehydes and Acids and on p. 31 undoubted preference is given to Rocque's method of making up the standard solution of the former by means of aldehyde ammonia. Mr. Vasey recommends the separate titration of the fixed and volatile acidity in view of the fact that the whole original acidity of a spirit must be due to volatile acid. In Chapter V. the author considers the Estimation of the Higher Alcohols and here he has to decide between the various processes which have been described. On the one hand, there are the superior scientific claims of the Dupré-Marquardt-Allen process; while on the other, there is the official recognition in certain countries of the Röse-Herzfeld method and of the method of colouration with strong sulphuric acid. The last method has, at any rate, the advantage that results obtained by it can be compared directly with the numerous French analyses at our disposal. Respecting compound ethers, the estimation of which is treated of in Chapter VI., the interfering effect of aldehydes is mentioned; this may doubtless be a disturbing influence in some spirits—notably in "marc" brandies—but may usually be disregarded. One advantage of the latter procedure is that comparison can then be directly made with most of the French analytical results. In Chapter VII. the Estimation of Furfural is described at some length and Chapter VIII. deals with the Importance of Taste. This chapter is less technical than the rest and the analyst is recommended to cultivate his senses of taste and smell. There is no doubt that expert tasters can detect admixture of spirit from different sources which would escape the average consumer. If the analyst can add to his chemical attainments some of the knowledge of a spirit connoisseur he will make himself an even greater terror to evildoers than he is at present. A description of colorimeters and a collection of spirit analyses occur at the end of the book. In Chapters I., II., and IX. the author expresses his belief in the possibility of judging of the origin of a spirit by the estimation of the bye-products; he is an equally firm believer in the propriety of a purchaser being supplied with that for which he asks.

The book will we think prove of interest to all those concerned in the analysis of spirits.

Précis des Maladies des Enfants. (Compendium of the Diseases of Children.) By Dr. L. BAUMEL. Paris: F. R. de Rudeval. 1904. Pp. 606. Price 8 francs.

THIS volume is one of a medical series which is now being published in Paris under the title of "La Bibliothèque des Précis de Médecine." It is, however, underrating the scope of Dr. Baumel's book to regard it simply as a compendium, for while it can hardly claim to be considered as a text-book it is in many respects much more than what is usually understood by a "précis." It consists of 600 pages of closely printed matter and contains a few illustrations, charts, and diagrams. The general character of the work is clinical rather than scientific or theoretical. There is little recognition of extraneous authority, especially that of English and American origin, and there is a considerable amount of originality. Dr. Baumel is clearly not afraid of his own shadow and he expresses views on the etiology and pathology of chorea, epilepsy, and certain other conditions which, to say the least, are refreshingly unconventional. The original manner in which he views many of the commonplace accidents of childhood renders his book far more interesting reading than is usually the case with works which are of the nature of systematic compendiums. Although it is perhaps hardly fair to the author to say that he is faddy on certain points we may at least without disrespect suggest that he has very strong views on certain subjects—to wit, the pathological disturbances which are referable to dentition and the value of the incubator for the rearing of delicate infants. As regards the use of the incubator the author is of the opinion that the majority of congenitally weak infants (*faiblesse congénitale*)—a class of infants in whom he evidently takes the greatest interest—could be saved if they were kept warm in incubators and fed properly by the breast. There can be no doubt that the thermotaxic centres of the modern infant are quite incapable of maintaining the bodily temperature under the slightest condition of cold—a fact which is abundantly shown by the frequency with which cold feet complicate the difficulties of treating most cases of congenital or acquired "feebleness of infants," so that we cannot help thinking that Dr. Baumel is serving the cause of the infant by demanding in a manner which some readers may regard as unnecessarily insistent that the temperature

of the infant shall be maintained at all costs—by incubation if no other means secure this end.

In the first chapter, which treats of the general hygienic management of infants, there are several points which naturally strike the English reader as a little behind the times—for instance, it is surely an abuse of terms to describe milk which has been sterilised and diluted with water as humanised milk ("*lait maternisé*"). On p. 13 appears a weight chart of an infant fed for some months on the breast and then transferred to the artificial substitute; the sudden fall in weight and its continued retrogression are very suggestive of the inappropriateness of the title "*maternisé*" for milk of this kind and yet this is practically the only suggestion for the artificial feeding of infants which appears in this volume.

In Chapter IV. (Part I.), a section which describes hæmophilia and Barlow's disease, there are one or two points which confirm our general suspicion that the nature of these diseases is very little appreciated by French physicians. The classification seems altogether confused in this volume. Barlow's disease, which we in this country consider so peculiarly amenable to treatment, is spoken of as a very dangerous condition and Henoch's purpura is either not mentioned or is described under the heading of Werlhof's disease. Again, in the section which deals with rheumatism, while the joint manifestations and the ordinary acute variety are fully described, the more ordinary phenomena of the "status rheumaticus" to which we in this country attach so much importance are only incidentally referred to in scattered portions of the text. The chapter on Dentition we regard as one of the best, as it is certainly one of the most original. This so-called physiological process is made responsible for a large number of what are usually regarded as independent accidents—chorea, for instance—but, taken as a whole, we regard this volume as well worth reading.

Clinical Lectures and Essays on Abdominal and other Subjects. By H. D. ROLLESTON, M.A., M.D. Cantab., F.R.C.P. Lond., Physician to St. George's Hospital, &c. With illustrations. London: Sidney Appleton. 1904. Pp. 178. Price 5*s*.

Dr. Rolleston may be congratulated on the production of a book extremely convenient in form and interesting in contents. None of the chapters are long, the subjects dealt with are very diverse, the manner of writing is clear and brief, and the matter chosen is either interesting from the rarity of the cases discussed or else of great moment from their commonness. The subjects of most importance include ascites, gastric ulcer, and typhoid fever. The interesting rarities are Recklinghausen's disease, persistent hereditary œdema, and progressive myositis ossificans. That Dr. Rolleston is thoroughly at home in the discussion of the etiology and pathology of these unusual conditions everyone familiar with his pathological work will readily understand. In dealing with the more common conditions above mentioned Dr. Rolleston has wisely adopted a practical point of view and offers several suggestions as to treatment which if not always in accord with the usually adopted routine have the advantage of being at any rate founded on reflective and logical reasoning. In the management of cases of gastric ulcer he is emphatic on the importance of the state of the mouth and on the possible harm from allowing even plain water by the mouth. Similarly in the case of typhoid fever Dr. Rolleston supports a starvation policy during the height of the fever, allowing, that is, only plain water in considerable quantities by the mouth. He "distrusts the value of alcohol in large quantities" and believes in the hypodermic use of strychnine and in the administration of small doses of liquor hydrargyri perchloridi. Dr. Rolleston wisely recommends, however, that an open mind should be kept in the treatment of cases of typhoid fever and considers that a routine system is inadmissible, seeing that the patient and not the disease should be especially the object of attention. Space forbids us to discuss the author's recommendations with regard to vomiting in diphtheria and in cases of gastric ulcer, tapping for ascites, and many other important points, but we can cordially recommend to students and practitioners the perusal of this little work as an easy road to some sound knowledge.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by Sir MICHAEL FOSTER, F.R.S., and J. N. LANGLEY, F.R.S. Vol. XXXI., Nos. 3 and 4. London: C. J. Clay and Son. June 30th, 1904. Price 8*s*.—These numbers contain the following articles: 1. Some Researches on the Autolytic Degradation of Tissues, Part I., by Janet E. Lane-Claypon (Mabel Webb research scholar) and S. B. Schryver. The authors of this article find that there is a large degradation of tissue shown by the increase in the nitrogenous extractives in all tissue hitherto investigated during the first 24 hours of incubation, amounting in the case of the liver to more than 50 per cent of the total in many instances. Three stages are as a rule observable—a latent or very gradual period, a period of rapid disintegration, and a period of slower but uniform autolysis. As neither perfusion nor ammonium oxalate affects it and as it is not influenced by the substitution of saline for distilled water it is probably a pure chemical function of the cell protoplasm. It is greater in a fasting than in a well-fed animal. Comparing this degradation with the action of trypsin on the liver, the authors arrive at the conclusion that the organ (liver or kidney) of the fasting animal contains a larger amount of either enzyme or zymogen which acts as a protection against starvation. 2. On the Secretion of Acid by the Kidney, by Arthur A. Cushny, M.D. 3. Studies on the Maintenance of the Equilibrium of Motion and its Disturbances, so-called "Forced Movements," by L. J. J. Muskens, M.D. Amsterdam. The author discusses the causes of "rolling movement" and "circus movement" both in invertebrata and in various vertebrates. 4. On the Relationship of the Thymus to the Sexual Organs, by James Henderson, M.R.C.V.S. The author states that castration causes a persistent growth and a retarded atrophy of the thymus gland in cattle, guinea-pigs, and rabbits. In bulls and unspayed heifers the normal atrophy of the thymus which begins after puberty is greatly accelerated, providing that the bulls have been used for breeding and when the heifers have been pregnant for several months. 5. The Composition of Pancreatic Juice, by Lucian A. E. de Zilwa, B.Sc.Lond. 6. A Pseudaffective Reflex and its Spinal Path, by R. S. Woodworth, Ph.D., and C. S. Sherrington, M.D.Cantab., with 12 figures in the text. 7. On the Question of Commissural Fibres between Nerve Cells having the same Function and situated in the same Sympathetic Ganglion and on the Function of Post-ganglionic Nerve Plexuses, by J. N. Langley, F.R.S., with two figures in the text. 8. The Innervation of the Sphincters and Musculature of the Stomach, by W. Page May, M.D.Lond., with six figures in the text. The author of this communication finds that the vagus contains easily demonstrable motor and inhibitory fibres for the musculature of the stomach. The splanchnics, on the other hand, have no influence upon the gastric musculature. The effect of stimulation of the vagus on the musculature as well as on the sphincters is first inhibitory and then augmentative. 9. Antiperistalsis and other Muscular Activities of the Colon, by T. R. Elliott, M.A., and E. Barclay-Smith, M.D.Cantab., with five figures in the text. These numbers also contain the Proceedings of the Physiological Society for March 19th and May 21st, 1904.

The Journal of Anatomy and Physiology. Conducted by Sir WILLIAM TURNER, K.C.B., F.R.S.; D. J. CUNNINGHAM, F.R.S.; G. S. HUNTINGTON, M.D.; A. MACALISTER, F.R.S.; and J. G. M'KENDRICK, F.R.S. Vol. XXXVIII., Part IV. July, 1904. London: Charles Griffin and Co., Limited. Price 6*s.*—The articles contained in this part are: 1. On certain Markings due to Nerves and Blood-vessels upon the Cranial Vault; their Significance and the Relative Frequency of their Occurrence in the different Races of Mankind, by A. Francis Dixon, D.Sc., with seven illustrations in the text. Dr. Dixon starts with the assumption that various grooves for nerves in the frontal bone owe their origin to a want of agreement between the rate of growth in length of the overlying nerves and the rate of expansion of the cranium. In a previous communication Dr. Dixon suggested that in those races which present numerous and deep grooves a tendency to an increased development of the frontal region of the cranium is taking place. His present researches made on many skulls support this view. 2. The True Form of the Brachial Plexus, by Wilfred Harris, M.D. Cantab., with three plates representing different forms of the brachial plexus. 3. A Study of the Astragalus, by R. B. Seymour Sewell, B.A., with seven plates. 4. Some Observations on the Level at which the Lower Border of the Third Part of the Duodenum crosses the Vertebral Column, by E. Fawcett, M.B., C.M. Edin., professor of anatomy at University College, Bristol, and J. V. Blachford, M.D. Durh. The point at which the crossing takes place is most commonly opposite the third lumbar vertebra, in males at rather a higher level than in females. 5. The Anatomy of the Visceral Pelvic Fascia, by R. Atkinson Stoney, M.B. Dub., with two plates and three figures in the text. 6. The Mammalian Cerebellum: its Lobes and Fissures, by O. Charnock Bradley, M.B. Edin., with five plates. 7. Multiple Malformations (genito-urinary and skeletal) occurring on one side of the Body in a case of Atresia Ani, by G. H. Edington, M.D. Glasg., with three plates. 8. Lectures on the Early Development of Mammalian Ova and on the Differentiation of the Placenta in different groups of Mammals, by Arthur Robinson, M.D. Edin., Lecture III. 9. An obituary notice of Professor Wilhelm His. 10. Proceedings of the Anatomical Society of Great Britain and Ireland.

New Inventions.

A SIMPLE TWO-SIZED STERILISABLE INHALER FOR THE ADMINISTRATION OF A MIXTURE OF ETHER AND CHLOROFORM (E_2C_1) OR FOR ETHER ALONE.

AN inhaler having in itself face-pieces of two different sizes is evidently very convenient. Good metal and celluloid inhalers for administering a mixture of chloroform and ether are already in use, but having felt the need

of a simpler and more closely fitting pattern I have had one made of German silver nickel-plated. It has the additional advantage of being reversible and so allowing of two face-pieces of different sizes—one for children and one for adults. The illustration will explain the form of the inhaler. The free edge of the face-piece is so bevelled and curved as to fit almost closely, and generally quite closely, the curves of the average face, even in people who have few teeth. Thus the entry of air being practically excluded except through the interior of the inhaler, the neck of which is fitted with a very loosely packed coarse sponge or gauze, very little anæsthetic is needed to induce or to keep up anæsthesia—so little indeed that there is no overflow from the sponge or gauze, which is prevented from slipping by four small wire projections. The inhaler is small and very easy to handle, being only five inches in height, and is easily sterilisable by boiling or by disinfectants; hence it is useful in operations about the head and neck. It is also admirably suited for the administration of ether to children and old or debilitated adults in whom much limitation of air-supply is inadvisable. If fitted with a rubber bag or one made of "battist," such as I described in THE LANCET of April 9th, 1904, p. 1002, this inhaler can be used as an Ormsby inhaler. A rubber air cushion may be added if it is wished.

Messrs. Salt and Son of 5, Cherry-street, Birmingham, have well carried out my instructions in the matter of modelling and making.

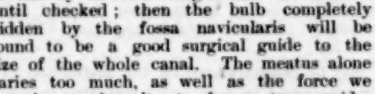
W. J. MCCARDIE, M.B., B.C. Cantab.,
Anæsthetist to the General, Dental, and Ear and Throat Hospitals, Birmingham.

IMPROVED MEANS OF EXAMINING THE URETHRA.

WHETHER there be grounds or not for the "Great Western" opprobrium that scientific urethral surgery is not up to date in England I find certain improvements on old things very useful. IN THE LANCET of Oct. 10th, 1891, p. 805, and in other papers I tried to point out what was required. After a large experience in their use I now bring to notice the instruments illustrated. One of these is a handy steel meatometer, two and a half ounces in weight (Fig. 1); the other is a bi-bulbous sound of aluminium, one of a full set (Fig. 2). The meatometer is twice the size shown. I long ago discarded the famous Otis methods. In using the meatometer it is allowed to fall by its own weight into the urethra until checked; then the bulb completely hidden by the fossa navicularis will be found to be a good surgical guide to the size of the whole canal. The meatus alone varies too much, as well as the force we use in passing it, to be a true guide. Neither is it true to say that any instrument passing it should always pass through the normal urethra. The meatus secundus is

FIG. 2.

FIG. 1.



a better guide. Next is examined the spongy urethra by the acorn bulb of one of the aluminium sounds of a size indicated by the meatometer, or if the whole canal is to be examined the rhomboidal bulb is used. The rhomboid will not "make" strictures as flexible bulbs will, or at least to the same degree, on the layers of the triangular ligament. The lightness of the sounds allows of irregularities met with to be communicated directly to the hand, unlike the flexible instrument which absorbs them as a pliant fishing-rod absorbs jerks. Again, the flexible instrument will often fail to pass into the deep urethra, nor can it be drawn out in its axis. Very large bulbs are unnecessary. We often forget wide expansion is not so much indicative of real urethral size as it is of the limitations caused by surrounding fibrous structures.

Mr. Montague of Bond-street, London, W. neatly makes these instruments from originals which I showed him.

Finsbury Pavement, E.C. JAMES MACMUNN.

THE LANCET.

LONDON: SATURDAY, JULY 16, 1904.

The Imperial Cancer Research Fund.

THE second annual report of the Cancer Research Fund, an abstract of which will be found at p. 164 of our present issue, contains much that is of great interest and importance and we welcome it as a very clear indication of the energy and zeal with which the investigation of the cause and treatment of malignant disease is being carried out. The substance of the report falls naturally into two parts. In the first are described the methods which have been used for the investigation of cancer and we learn that systematic records of cases of malignant disease are being received from many hospitals in London and in other parts of the country, and from these records which all depend on diagnoses controlled by microscopic examination, valuable deductions have been made. Much statistical information has also been obtained from the department of the Registrar-General and for a time a special grant was made for the employment of certain clerks in the Registrar-General's office to abstract facts from the registers relating to the type of malignant disease and the organ affected with a view to ascertain the relative incidence of cancer in the more important occupations. Seeing, however, that it has been decided by the Registrar-General to prepare such a report for the forthcoming census it will not be necessary in future for the Cancer Research Fund to defray the expense. The chief conclusion that may be drawn from these records is that there is no evidence of any increase of cancer in this country in spite of what the apparent rise in the mortality from malignant disease would seem to show, for it has been found that the more fully the cause of death is investigated, as by post-mortem examination, the more frequently is a diagnosis of cancer made. Thus in hospitals in London, for instance, where nearly all bodies are examined after death, the proportion of deaths from malignant disease is especially high, while in some country places deaths are not recorded as due to cancer simply because it has not been possible to make an exact diagnosis. Similarly specimens of carcinoma have now been obtained from some races in tropical climates in which cancer had never been known before. In the words of the report, "The extent to which cancer is recorded is inversely proportional to the difficulties which have to be overcome in obtaining information."

It has been found necessary by the Fund to obtain a farm where animals suffering from cancer can be kept under observation for therapeutic and other purposes. It was desirable to obtain specimens of malignant growths from domestic and other animals and the assistance of the Board of Agriculture was invoked and a number of veterinary surgeons have also helped so that many malignant tumours from the various domestic animals have been obtained. Another interesting conclusion from the observations made by the director, Dr. E. F. BASHFORD, and his assistants is that it has been definitely proved that malignant growths exist in all branches of the vertebrata, and that the oft-uttered dictum that only domestic animals are affected with cancer is not borne out by the facts now known to us. A special interest thus attaches to the 16 cases of carcinoma in fish which have now been recorded, two of these occurring in fish living in the open sea. A wild mouse also has been found to be affected with a spheroidal-celled carcinoma. The main conclusions of the report may be summarised as follows and almost in the very words employed. From the great diversity of the food, habitat and conditions of life of the animals in which cancer occurs it may be concluded that such external agencies have no causative influence, and the histological characters, methods of growth, and the absence of a specific symptomatology irresistibly lead to the conclusion that it is not permissible to seek for the causative factors of cancer outside the life processes of the cells. These opinions are founded mainly on the examination of transplanted tumours. The new tumour that arises in an animal from the transplantation of a portion of a growth arises from the tumour cells introduced, by cell division, and presents in all stages of its growth the same minute structure; further, growth can only take place in animals of the same species and fails in even nearly related animals. Any agency which merely destroys the vitality of the cell renders the results of transplantation completely negative. One interpretation of the opinions expressed in the report is that it is impossible that cancer can be parasitic in origin. The conclusion may perhaps be regarded as somewhat hasty, for our present knowledge does not warrant any such statement. All the facts recorded are no doubt of very great interest and deserve our most careful consideration but they are not incompatible with the theory that carcinoma is produced by the influence of an intracellular parasite which stimulates the cell to excessive multiplication. It is, however, good to note that whatever views the Director of the Cancer Research Fund may hold he does not hold them dogmatically, and it is essentially the policy of those responsible for the working of the Fund to preserve impartiality.

NEWTON'S saying, "*Hypotheses non fingo*," should serve to keep us from hasty assumptions. It is a scientific mistake to theorise on insufficient data and the successful outcome of the work of the Cancer Research Fund would be likely to be hampered greatly by the adoption of premature conclusions. It is essential that an open mind should be kept on the question of the etiology of malignant growths, for a hasty theory cannot fail to lead away the inquiry from the right path. At present the work of the Fund must lie mainly in the careful recording of all observed facts, in the investigation of all suggested lines of inquiry, and in the trial of all reputed remedies. A theory is no bad help in such a research, and we do not in the least object to this theory remembering that it is put forward as a suggestion and not as an authoritative statement. Much work is being done in the domain of therapeutics and though no very definite results have hitherto been obtained we can now feel that we are standing on firmer ground than when we had to depend entirely on the

application of remedies to the human body. We may conclude by saying that we have the highest appreciation of the work that is being done under the auspices of the Fund. We hope that it will be fruitful in results. His Majesty the KING has again given proof of the great interest which he feels in the matter by sanctioning the addition of the word Imperial to the title of the Fund which therefore in future will be known as the Imperial Cancer Research Fund.

Health and Education.

THE reception by Lord LONDONDERRY of the great deputation that waited upon him on Monday, in order to present a petition as to the teaching of hygiene which had been signed by nearly 15,000 medical practitioners and to enforce its recommendations by argument, is an event of good augury to the profession. It seems to indicate the approach of a time when medical men, as practically the sole custodians of forms of knowledge essential to the public weal, will not only assert their claim to be heard with deference and attention upon many subjects of importance which for the present are mainly left under the sway of ignorance, but when this claim will be freely admitted by responsible statesmen and will be rendered operative in the departments of public activity which they control. The petition itself was couched in terms so wide as almost to elude controversy and set forth that the petitioners, having constantly before them the serious physical and moral conditions of degeneracy and disease resulting from the neglect and infraction of the elementary laws of hygiene, urged the central educational authorities of the kingdom to consider whether it would not be possible to include in the curricula of the public elementary schools, and to encourage in secondary schools, such teaching as may, without developing any tendency to dwell on what is unwholesome, lead all the children to appreciate at their true value healthful bodily conditions as regards cleanliness, pure air, food, and drink. The petitioners admit that pupils may now receive teaching on the laws of health by means of subjects almost invariably placed upon the optional code, but to this system they demur as being at least inadequate. They maintain that the teaching should be compulsory and that it should be given at a much earlier stage than at present and they append to the actual petition a few paragraphs describing what is now done in the indicated direction in our own army schools, in several of the colonies, and in some foreign countries. Finally, having regard to the fact that much of the degeneracy, disease, and accident with which medical men are called upon to deal is directly or indirectly due to the use of alcohol, and that a widespread ignorance prevails concerning not only the nature and properties of this substance but also its effects on the body and the mind, they urge upon the authorities the importance of including in the simple hygienic teaching sought for elementary instruction at an early stage on the nature and effects of alcohol. The recommendations of the petition, as will be seen from our report, were strongly pressed upon the attention of Lord LONDONDERRY by Dr. R. FARQUHARSON, M.P., Sir WILLIAM BROADBENT, the President of the British Medical Association, and others.

Lord LONDONDERRY, after an appreciative reference to the tone of the petition and to the character of the deputation presenting it, and after expressing the desire of the department under his control to do whatever might be possible in the directions indicated by the petitioners, made an interesting reference to the question of physical degeneracy. He did not know, he said, whether the petitioners as a profession were prepared to affirm the opinion held in some quarters that there is a serious decline in the physical powers of the people, and, if there were such a decline, he feared that it would be impossible for the Board of Education alone to arrest it. But it was the fact that a competent committee had for some months past been investigating the alleged facts as to physical deterioration and he had every reason to think that the conclusions and advice of that committee might be available at no distant date. If it should prove to be the case that such deterioration as might exist was confined to certain sections of the population and was distinctly traceable to certain social or economical conditions, even then, although the work of the schools might do something, the Board of Education would require the coöperation of other agencies in order to bring about a remedy. The safe rule never to prophesy unless you know is one that is early grasped by everyone who is intrusted with ministerial responsibilities; we are therefore not without hope that the extent of the alleged degeneracy has been at least somewhat exaggerated by alarmists. We do not on this account, however, regard the position of the petitioners as being weakened in the slightest degree. For more than 30 years the country has been spending enormous sums of money upon schools and the control of this expenditure has frequently been vested in persons not possessing any discoverable qualification for the proper discharge of the duties committed to them. The general result has been that the children have been crying for bread and we have given them a stone. They have had schooling instead of education and the schooling has closely conformed to the terms of the general confession in the Liturgy. It has left undone nearly everything which it ought to have done and it has done a great many things which it might with advantage have omitted. It has not guided the average working-class boy towards the acquirement of a useful industry or towards a proper appreciation of his duties as a citizen of a great empire. It has not given the working-class girl an inkling of the duties of wifehood or of maternity. Its faults have been largely due to the popular election of local school authorities and to the piteous striving of the baser sort of politicians to please the most ignorant and the least estimable of their constituents. The medical profession has now made an effort to lift the whole question on to a higher plane, to declare *ex cathedrâ* what it is that the children want and in what manner their wants can be most effectively supplied. We trust that the better class of public opinion will before long be enlisted on the side of knowledge against ignorance.

Lord LONDONDERRY called attention to the difficulty arising from the fact that at present there is not an adequate supply of teachers qualified to impart the instruction asked for by the petitioners, but held out hope that this difficulty was in process of being overcome. It does

not arise for the first time, for it will be remembered that when the first Adulteration Acts became law there were not analysts enough to carry out their provisions. Even when the teachers are provided it will be necessary to avoid cherishing undue expectations as to the immediate results of their work. They will have to begin at the very beginning and more than one generation must be expected to pass away before any fruit of their labours becomes apparent; before the working classes are more cleanly in their persons, their dress, and their habitations; and before knowledge and appreciation of domestic comfort are at all extensively diffused. Underlying the educational problem we have the still more serious and pressing one of housing; until the wage-earners can obtain better and cheaper habitations than are now usually accessible to them even a sound theoretical knowledge of the laws of health would have to fight against terrible disadvantages. The same consideration applies to teaching about the effects of alcohol. Even when all illusions concerning its food value have disappeared the labouring man or woman will still know by experience that it affords at least a temporary relief from the pains of indigestion or a temporary forgetfulness of the ills of poverty. The way in which it has been singled out by the petitioners gives some colour to the suggestion that the movement as a whole has been captured by teetotalers and that it may be in some danger of being injured by exaggeration. That this danger is not visionary is sufficiently shown by the example of the United States, where a teetotal organisation has mastered the educational authority and has been able to force upon the schools so-called hygienic text-books which are only teetotal pamphlets in disguise and which have compelled instructed physiologists to refuse to take part in teaching which they cannot recognise as being under the guidance of facts. A very instructive report on this subject and on American hygienic teaching generally, prepared by Miss ALICE RAVENHILL, was published two or three years ago by the Sanitary Institute of Great Britain.

Deaths in Childbed: a Preventable Mortality.

THE important question of the mortality of childbed is one that has long occupied the minds of all those who are concerned with the care of parturient and lying-in women. It is a mortality which is the more to be deplored as it has been shown by the results obtained in lying-in hospitals to be almost entirely preventable. Well may we ask, if this be so, why has it not been prevented in private practice to the same extent? It is high time that some serious attempt should be made by the legislature, the medical profession, and all concerned to put an end to such a painful sacrifice of lives, a sacrifice which is the more terrible when we realise that some 4000 women die annually in England and Wales in childbed, about half the number falling victims to the ravages of puerperal fever. Dr. W. WILLIAMS has done well to devote the Milroy lectures to a consideration of the various factors concerned in producing this serious mortality. It is important in comparing statistics of the mortality in childbirth during the last 50 years to bear in mind the fact that since 1881 the registration of this form of death has been much more satisfactory than previously, but allowing for previous fallacy from this source there is no escaping the fact, as Dr. WILLIAMS points out, that during the last 40 years upwards of 40 per cent. of the total childbed mortality has been due to septic diseases. Further than this, this undiminished rate of mortality has been sustained for a period of 20 years and the sources of fallacy are not confined to one or two years. It is possible, of course, that this undiminished mortality is the direct result of the improved certification of the causes of death and is more apparent than real. At the same time there can be no doubt that the death-rate from such diseases in lying-in hospitals has been reduced almost to the vanishing point and therefore the undiminished mortality rate must be due to deaths occurring outside these institutions—viz., in private practice.

An examination of the figures for the different groups of registration counties shows that the death-rate from puerperal septic diseases is highest in the hilly districts of the counties lying west of a line drawn from the mouth of the Severn to that of the Tees. A further examination of the results for the Welsh counties undertaken by Dr. WILLIAMS tends to show that, while the mortality from puerperal fever and the accidents of childbirth is excessively high in both North and South Wales, density of population does not seem to be a factor of much importance. On the contrary, the mortality from puerperal fever and from the accidents of childbed shows a marked tendency to prevail in those counties which have in common the features that they are mountainous, hilly, and sparsely populated, and that therefore locomotion is difficult and medical assistance is not easy to obtain. A more detailed investigation of the registration county of Glamorganshire, which is partly composed of mining districts and partly of agricultural areas, leads to the conclusion that puerperal fever often, though by no means always, selects for its ravages the most insanitary districts, while in the densely populated mining districts the mortality from both the accidents of childbed and puerperal fever is very high indeed. What possible explanation is forthcoming of this high mortality? Dr. WILLIAMS is inclined to take the view that while part of it is to be explained by the large number of untrained women who practise as midwives in these districts and the difficulties of obtaining skilled medical assistance, yet that the exceedingly hard lot of many of these poor women is an additional reason why they are unable to resist the inroads of the disease when they are exposed to its infection. An investigation of the mortality rates from puerperal infection and from the accidents of childbirth in many of the large towns and industrial and mining centres in England and Wales tends to show that the same high rates prevail in most of the mining and industrial centres. What are the other causes which can account for this excessive mortality rate? Is it due to ignorant midwives? Is it due to the neglect of aseptic and antiseptic precautions on the part of those attending these women? Or is it due to unnecessary interference with the normal course of labour? Dr. WILLIAMS has little hesitation in coming to the conclusion that midwives play a most important part in the causation of this sustained mortality rate from puerperal sepsis and from the accidents of childbirth. With what safety women can be

attended by skilled midwives is admirably illustrated by the statistics furnished in the lectures of the results obtained in the extern maternity department of the General Lying-in Hospital where in 23 years (1880–1902) there were 29,346 deliveries and only three deaths, or a mortality rate of 1 in 10,000. If the happy day ever arrives when all midwives are properly trained and sufficiently skilled there is no reason why equally good results should not be obtained throughout the country.

If we admit that the cause of the present high mortality is mainly the untrained midwife we must ascertain our duty in the matter. This is by no means a new question but is one which has troubled the minds of thinking men for many years. It is by an extension of the methods which have answered so admirably in the case of lying-in hospitals that we must try to find an answer to the problem. In other words the solution lies in the better training of medical practitioners and of midwives, but especially of the latter. But how is the efficient training of midwives to be insured? The new Midwives Act doubtless represents an endeavour to deal with the matter although it contains no hint as to how the desirable end is to be obtained. Indeed, recent proceedings of the Central Midwives Board would seem to indicate that the only real source of training, instruction, and supervision—that to be derived from the medical profession—is to be minimised if not ignored. And where are the funds for the proper training of these women to come from? Will they be provided by the charitable public? It must be remembered that in foreign countries such training is provided free by the State. In this country we can only depend on the hope that private and public benevolence will as usual come to the rescue and provide the funds required for the purpose of supplying women with the necessary training. Dr. WILLIAMS'S own suggestion is that a National Council should be formed for the purpose of undertaking the proper distribution of trained midwives throughout the country districts and of collecting funds. It should, he thinks, help to found training scholarships, to give grants to districts too poor to support a midwife, and to start a national training hospital for midwives. It is possible that in the course of time the necessary training, which may well be, as it has been, termed of a technical nature, will be taken up by the various county councils and similar public bodies. The Glamorganshire county council is already undertaking something of the kind and it is to be hoped that other county councils will follow its good example. In the meantime the Milroy lecturer has done well in again calling attention to the deplorable sacrifice of valuable lives which still occurs and his eloquent facts and figures will encourage a hope in the minds of our readers that the Midwives Act *if only it can be properly and efficiently carried out* may prove a blessing to thousands of poor women in country districts. It is sad to think that a work which is essentially one affecting the State as a whole will be handicapped for want of sufficient funds to carry it out. Surely here is something which should appeal to the thousands of happy mothers who have the inestimable benefits of skilled medical attendance and of first-rate nursing in the hours of their travail. We cannot believe that they will forget the needs of their poorer sisters and we hope that a day may at last come when the present deplorable mortality from a preventable disease such as puerperal fever will no longer exist as a lasting disgrace to our boasted twentieth century civilisation.

Annotations.

"Ne quid nimis."

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE most remarkable feature of the recent election of three members of the Council of the Royal College of Surgeons of England was the heavy poll. We complained in a recent issue of THE LANCET that the Fellows seemed hardly to appreciate the privileges which they possess, for at last year's election only about half of the Fellows exercised their right of voting, but we must confess that at this election the Fellows have by no means been backward in recording their votes. There are on the register of Fellows 1302 names; of these 182 Fellows are abroad, in the colonies, or serving in the navy, army, or Indian medical services, the addresses of 15 Fellows are unknown, and one Fellow is not yet entitled to vote, so that there remain only 1104 available voters, and of these 819 recorded their votes; this gives a percentage of over 74 and there are few electoral bodies which could show a higher percentage of votes than this. For the Royal College of Surgeons itself it establishes a record which will not soon be beaten. The highest number of Fellows voting at any previous election was in 1901 when 768 voting papers were received. As is now the rule, very few Fellows voted personally, for only 16 attended for this purpose. The result of the election differed slightly from the forecast which we had made, though we had predicted the return of Mr. H. Gilbert Barling of Birmingham and had suggested that Mr. A. A. Bowlby would very probably prove successful. We congratulate Mr. Frederic S. Eve on his election and feel sure that he will worthily represent the important medical school with which he is connected. We must, however, express our surprise and regret that Mr. C. H. Golding-Bird was not successful. We should have thought that such a medical school as Guy's could have made Mr. Golding-Bird's election certain. We may, however, express our sincere hope that he will prove successful at the election next year—for we trust that he will then again offer himself as a candidate for the suffrages of the Fellows. As on former occasions there were many plumping votes. The largest number of these were given to Mr. Eve who received 53 plumpers and this contributed greatly to his success, for his votes exceeded by only 18 those recorded in favour of Mr. Golding-Bird. Mr. Barling received 42 plumpers and most of these were probably recorded by provincial Fellows. The curious opinion seems to be very prevalent amongst the voters that by "plumping" more than one vote can be given to a candidate but it is not so; to plump for a candidate gives him only one vote. In one way it is fortunate that it is so, for otherwise the work of the scrutineers, which is by no means a sinecure at present, would be greatly increased. We give below fuller particulars of the election than were contained in THE LANCET of July 9th:—

	Votes.	Plumpers.
Mr. Barling	410	42
Mr. Bowlby	327	8
Mr. Eve	313	53
Mr. Golding-Bird	275	25
Mr. Bland-Sutton	251	32
Mr. Bruce Clarke	212	8
Mr. Harrison Cripps	170	7

819 votes were received, of which 16 were personal votes

and 803 came by post, but one vote was invalid and five were received too late. The following numbers of votes recorded for the last ten years—i.e., since voting papers have been sent to all Fellows—may prove of interest: 1895, 681; 1896, 619; 1897, 655; 1898, 677; 1899, 493; 1900, 713; 1901, 768; 1902, 743; 1903, 665; and 1904, 819. In the evening of the election day a dinner of the Fellows was held in the College building. The Fellows' dinner was years ago a highly appreciated institution but it was never before held in the College itself. More than 100 Fellows were present on this occasion and a very pleasant evening was spent. The recent additions to the museum were on view and also many of the more remarkable specimens from the museum were displayed. Some of the more valuable of the treasures of the College were to be seen in the Common Room. We hope that even if it be found impracticable to hold a Fellows' dinner annually it may be possible to arrange for one in alternate years. The day of election of members of the Council is very convenient for several reasons and if all the arrangements are as perfect on subsequent occasions as they were this year there can be no cause for complaint. This year for the first time no meeting of Fellows was summoned for, as will be remembered, the persistent abstention of Fellows from these meetings prevented the formation of a quorum.

CURIOUS RESULT OF LAXITY IN DEATH CERTIFICATION.

IN the Philippines recently four criminals are stated to have been executed by the process known as garrotting and to have been certified as dead by a native medical man, by an American judge, and by the other lay officials charged with that duty. Afterwards while the supposed dead bodies were lying in a church awaiting the funeral ceremony two of them showed signs of life and have since completely recovered to find that the record in their case has been closed and that they have no legal existence. They are, however, in spite of this retained in prison and it is suggested that if let loose they might commit further crimes, although should they do so aggrieved persons killing them could not be punished for taking lives already officially extinct. Their sentence has been changed to one of incarceration for life, but the legality of this they dispute, presumably on the ground that the punishment ordered in the first instance has been carried into execution. If the story is true it might be suggested that as a precaution for the future the duty of death certification should be intrusted to one competent to perform it. The qualifications of the medical man described in the account before us as a "native doctor" are not stated.

SUNSHINE RECORDS.

IT is interesting to consider which property of sunshine is more important to life, that of the heat-giving rays or that of the chemically active rays. Both are, of course, essential and although a person may be shivering in sunlight he may still be enjoying the benefit of the actinic emanations. They are the agencies whereby the great synthetic processes in plant life are begun and continued. They keep the machinery of nature in motion and in being, they build up food both for man and beast, and if the chemical energies of sunlight were to cease life would flicker out. Our knowledge of the chemical action of sunlight is, however, by no means complete. In some way or other the advent of sunlight increases the feeling of well-being of the individual possibly by promoting the oxidation processes of the internal economy. The circulation is improved and the condition of the blood is favourably affected by its oxygen-carrier being stimulated into activity. Vitality, in a word, is increased and the exhilarating effect of the first burst of sunshine in the spring after a dull period in the winter is a common experience. After all, it is probable that "the brighter view of things" which individuals take under the influence of bright weather may have its origin in the chemical activities of the sun. The health-giving effects of sunshine may therefore be ascribed to the actinic rays rather than to the luminous rays of the sun. The official records of sunshine in this country refer to the duration, and not to the intensity, of the light. In other words, these returns record negatively the obscuration of the sun by cloud. On the other hand, the temperature is recorded in terms of intensity and it seems to us that similarly the intensity or chemical activity of sunlight should be recorded, for duration can bear no direct relationship to intensity. The sun might shine all day with a feeble intensity owing to meteorological conditions, haze or fog, and conversely sunshine might only favour us for an hour and in that comparatively short time exhibit an intensity or degree of chemical activity equal to a day's duration. The sunshine in mountainous places as in Switzerland is much more active chemically, as a rule, than the sunshine in the United Kingdom, although in the latter place the duration might even exceed that of the former. Amateur photographers experience this readily enough, for they find that the exposure required for the sensitised plates on a bright day in Switzerland is infinitely less than that required under similar conditions in England. In the former case the transparency of the air is greater and the actinic rays of the sun are not cut off as they are in this country. Duration, therefore, is not necessarily a synonym for intensity and thus the value of comparative records of duration for different places may be discounted when any record of intensity is omitted. No one would think of recording rainfall by its duration. The actual amount of water falling would depend upon whether the shower was heavy or light or a steady drizzle. The rainfall is therefore measured by the weight falling on a given area and it seems to us that the meteorological records should include not only the duration of sunshine but also its intensity as measured by its chemical effects. If the benefit derived from sunshine is due to its chemical energies careful records should be kept of them, especially at our health stations.

NERVES OF THE SCLERA.

THE nerves of the sclera have been investigated by the Russian physician Dr. A. Agagabow and the results which he has obtained are contained in the March number of the *Archiv für Mikroskopische Anatomie*. He finds that the best method to display them is the injection *in vivo* of methyl-blue solution containing from 1 to 3 per cent., with subsequent removal of the eye from the body, evisceration of its contents, and careful section. By these means the nerve endings can be followed to their finest ramifications and Dr. Agagabow has been able to distinguish sensory, trophic, and vaso-motor nerves, the last characterised by ganglion cells. The sensory nerves are to be found in all parts of the sclerotic; they are immediately recognised by being medullated, though some lose their medullated sheath near their termination. These fibres are varicose and exceedingly delicate and end in a nodule slightly larger than the varicosities. In some instances a terminal brush-like arrangement of varicose fibres is observable. Where the nerve trunks cross vessels they may be sometimes seen to be flattened out and appear to be as much as two and a half times thicker than before or after crossing. This peculiarity, which may be observed in other parts of the body, has not received the attention that it deserves from histologists.

Dr. Agagabow gives illustrations showing the mode of termination of the sensory nerves. These are drawn with much delicacy. The vaso-motor nerves taken from the choroid are also shown which exhibit the disposition of the ganglion cells both singly and in groups. He states finally that in many sections of the sclera taken from white cats and rabbits finely granular nerve fibres may be met with which proceed from medullated nerve trunks and which form intercommunicating networks round endothelial cells.

PUBLIC-HOUSES AND THE SPREAD OF TUBERCULOSIS.

THAT the public-house is a fruitful source of infection by the tubercle bacillus is well known and the returns of the English Registrar-General show that public-house servants are specially prone to be affected by pulmonary tuberculosis. This is not to be wondered at when we consider that the floor of the lower class of public-house is covered with sawdust which in great measure is impregnated with sputum. This dust dries and is constantly being stirred up by the feet of drinkers. Not only are barmen and barmaids and the customers of the house thus exposed to infection but the unhappy children who are brought into the house by their mothers are likewise in danger. The public-house is the poor woman's club where she can discuss with her neighbours social and domestic incidents; the children cannot be left at home and so they sit on the public-house floor during their mothers' gossip-time. Only the other day passing a large public-house in one of the main thoroughfares of St. Luke's we noticed through the open door of a public bar several slatternly women drinking at the counter, while crawling on the floor of the bar and rubbing their hands in the saw-dust with which it was strewn were two babies of from 18 to 24 months old. That this is not an uncommon occurrence those who have occasion to visit poor and squalid neighbourhoods well know and in the light of such facts is it to be wondered that the race is said to be degenerating or that medical science should have such a hard up-hill fight with disease? Granting that these children, probably the offspring of degenerate beings, become infected with the bacillus of tubercle the environment in which they live will necessarily be a potent factor in the development of pulmonary tuberculosis and not only will they themselves suffer but they will also involve the public in great expense for their subsequent treatment and keep. Recently a law has been passed to prevent children under a certain age from obtaining intoxicants and there is legislation for the prevention of cruelty to children but as yet there is no law to prevent ignorant mothers from leaving their offspring to play on the disease-laden floor of a public-house. In another column we refer to the efforts being made to inculcate the precepts of hygiene at an early age and many publicans, notably those in the borough of Woolwich, post up notices requesting their customers not to spit. But until spitting on the floor of a tavern is made a penal offence as it is at present to spit in a tramcar, there is but little hope of amelioration.

ON PUBLIC HEALTH AND SOME OTHER MATTERS.

THE Buddhist ascribes all evil to Avidyá or ignorance, and whether the arguments by which he arrives at this conclusion be valid or not there can be no doubt that a large amount of bodily sickness, with its attendant pain and suffering, is due to this cause. To dispel the ignorance which creates disease is part of the work of the medical profession and in so doing it offers itself as a sacrifice to the cause which it serves. For does not its material existence depend upon the existence of the ills which it alleviates? Its reward is the satisfaction of duty well done, and more and more as our science continues in its progress is it seen that the work of medicine is becoming preventive. Our best energies are devoted to the forestalling of disease, instead of waiting, as in days gone by we were compelled to wait, until a manifested disease called for our therapeutics. In recent years, as thought and study have been devoted to the various aspects of public health, it has become obvious that endeavours to educate the masses of the people in those matters on which the general health depends offer the best chance of securing effective protection of the community. Medical men have consequently welcomed the aid of various institutions and societies which by collecting statistics, delivering lectures, and other methods have helped to awaken the members of the public to their responsibilities with regard to the care of family, community, and national health. Singularly little assistance in this direction has been received from the public press, the most powerful educative machine that we possess in other directions. So far from helping the cause of health, in too many cases the public press serves as a medium for puffing the quack. And even where the self-respect of editors and proprietors prevents this we are very generally treated to a curious exhibition of ignorance upon all medical topics. On the slightest hint of a new medical discovery inaccurate and highly coloured articles are written, holding out hopes to poor sufferers from diseases incurable—in the present state of our knowledge. If the press would become the vehicle of the dissemination of scientific knowledge instead of the medium by which the quack robs the public we should all have reason to rejoice. In the household ignorance of sanitary laws is often the cause of much disease otherwise preventable and in the case of infectious diseases the evil may be widespread. The want of knowledge of the most simple hygienic rules regarding food, ventilation, and cleanliness by the public as a body is astonishing. We are pleased therefore to see that a new movement is about to be initiated by the committee of management of the Hospital Saturday Fund, which has under its consideration a scheme for the establishment of a health department. It is proposed to form classes for the instruction of women in the elements of domestic hygiene, the lecturers to be medical men. The Hospital Saturday Fund is in touch with working men throughout London and the scheme if properly carried out ought, in the near future, to have an important influence on the health of the community generally.

INSANITY AND THE HEREDITARY NEUROSES ALLIED TO IT REGARDED FROM THE STANDPOINT OF VARIATION.

EVER since Morel of Belgium (1858) published his classical treatise on degeneration in human races the attention of alienists and neurologists has been drawn to the study of insanity as a problem of what the biologists call variation. In the *Edinburgh Medical Journal* for May and June Dr. John Macpherson, Commissioner of Lunacy for Scotland, draws attention to the anatomical "stigmata" or physical signs of abnormal development present in the insane, and especially in the idiot, the imbecile, and the feeble-minded. The absence of certain mental faculties is, says Dr. Macpherson, "wholly or in part correlated with the development of the physical organisation, especially that of the central nervous system, and it is rare to meet with imperfect congenital structure of the nervous system in the absence of bodily imperfections." The more grave the incidence of the mental defect the more numerous and pronounced are the physical malformations. Thus, as we pass up the scale from monsters to idiots, imbeciles, and the higher classes of the latter we find a gradual diminution of physical stigmata of degeneration until they disappear altogether as we emerge upon the normal platform of the race. The mental defects

which are correlated to these physical stigmata are manifested as epilepsy, hysteria, chorea, tics, and obsessions. An analysis of the causes acting on the germ cell or embryo so as to give rise to the defects or anomalies of idiocy, imbecility, and weakmindedness leads Dr. Macpherson to the conclusion that the vast majority (90 per cent.) of instances are due to modifications of the germ cell or the early embryo; in short, modifications of the germ plasma, so that the offspring born are in turn liable to transmit the defect or diathesis to their descendants. 10 per cent. of the cases are secondary to extraneous causes affecting the fœtus or newly born infant, such as difficult parturition and asphyxia, cerebral hæmorrhage, sensory defects from porencephaly and softening, and similar gross lesions. Dwarfism, says Dr. Macpherson, is often marked by physical (rachitic) deformity combined with a feeble intelligence, a point to which attention was called in THE LANCET [1] in an annotation on the relation of rickets to mental deficiency. Dwarfs are met with in every race and in most orders of plants and animals but, adds Dr. Macpherson, being pathological they are sterile and cannot procreate offspring. Absence of one or more fingers is correlated with acephalus, cynocephalus, or other grave malformation. "It is rare to see a diminution of fingers," says Geoffrey St. Hilaire, "in a non-monstrous individual." Polydactylism is, on the other hand, consistent with normal bodily and mental development and when it occurs in parents it is transmitted to the descendants with remarkable persistency. Dr. Macpherson quotes a classical case of the transmission of this defect for ten generations in a family, the transmission being effected by the female members only. Albinism, a condition of absence of the normal pigments of the skin, hair, and iris, is also "strongly inherited" (Lucas and Darwin), the formation of pigment being arrested early in fœtal life. A curious correlation of albinism with deafness is found in cats since albino cats with blue eyes (Darwin) are also born deaf. Dr. Felkin of Uganda states that idiocy is of frequent occurrence in albino children born of the natives. Germ cells or incipient embryos which are highly damaged or defective usually do not grow to full term but abort at the end of the first month of intra-uterine life, hence the relative fewness of full-born monstrosities. "But for this fact of abortion," adds Dr. Macpherson, "the relative number of human monsters [born at full term] would be infinitely greater than it is." Among the specific neuroses allied to insanity and which, like the latter, are transmissible by heredity are enumerated the following: epilepsy (which is ubiquitous in the human races), hysteria major (which is equally widespread), catalepsy, the phrensies occurring in spiritualistic "mediums" and "oracles," and dipsomania (a strongly marked craving for artificial mental states produced by alcohol and drugs, strongly hereditary, and usually commencing at the adolescent period of life). Many other bonds of similarity exist between dipsomaniacs and the insane, showing, concludes Dr. Macpherson, that the victims of dipsomania are variations from the normal type.

CONTAGIOUS ABORTION IN CATTLE.

THE contagious, specific, or infectious abortion of cattle has long been a source of great monetary loss to all breeders of such animals. At the request of the Board of Agriculture Professor Cave, F.R.C.V.S., has carried out a series of observations on its prevention the results of which have been issued in a leaflet published by the Board. This form of abortion, which may be defined as an infectious catarrh of the womb due to a specific organism and readily transmitted from one animal to another, produces in some herds a very large number of abortions every year, and once it has been introduced is very difficult to stamp out. The percentage of cows that may abort in a herd affected by this disease often amounts to as much as 50 per cent. of the whole number. If we estimate the monetary loss at, say, £7 10s. in each case it is clear that the total loss experienced by dairy farmers throughout the country is very large. The treatment adopted by Professor Cave consisted either in the internal administration of carbolic acid and the local application of various antiseptic lotions or in the use of local antiseptic applications alone. The internal administration of carbolic acid alone was also tried but with little result. When, however, reliance was placed on the external use of antiseptics the results obtained were most encouraging. In the case of a herd in which the loss from infectious abortion had amounted to from 25 to 50 per cent. of the calves during the last 18 years the following treatment was adopted. The anus, vulva, under surface of the tail, thighs, and udder were sprayed with a watery solution of izal (1 in 80) three times weekly. The cowsheds were cleansed by the use of lime-wash and common carbolic acid, while the under surface of the roofs was sprayed with izal solution (1 in 200). The lime-washing and the spraying of the roofs were done every three months and the floors and drains were washed with a solution of izal of the same strength three times a week. All cows which had aborted were carefully isolated, fattened, and sold. The experiment was carried out for a period of three years. During the first year four cases of abortion occurred and two cases of premature delivery. Two of the cases of abortion were in heifers which had not received any treatment at all. The outbreak, which was one of many years' duration, ceased entirely after eight months of treatment. In another case this method of local antiseptic treatment was combined with the internal administration of carbolic acid. Here almost equally good results were obtained, no doubt mainly due to the local treatment and not to the administration of the carbolic acid. Professor Cave's results clearly show that contagious abortion can be prevented by the adoption of appropriate local antiseptic treatment for the cows and if necessary for the bull and that it should be combined with the strict isolation of all cows which have aborted and their subsequent sale and the destruction by burning of the fœtuses, placentæ, and membranes. The experiments are of great interest to medical men as showing how successfully antiseptic treatment can be employed in veterinary obstetric medicine and are of the utmost importance to breeders of cattle who now know what precautions they should take when their herds become affected with this dangerous but preventable disease.

[1] THE LANCET, Jan. 10th, 1903, p. 117.

TREATMENT BY INTRASPINAL INJECTION OF DRUGS.

AT the meeting of the Académie de Médecine, Paris, held on June 14th Dr. Jules Glover read a paper of considerable practical interest on the intraspinal injection of various alkaloids as a means of treatment. He finds in severe conditions of renal inadequacy in the course of cases of heart disease with cardiac failure, in cases of severe diarrhœa with collapse, and in high-tension or low-tension conditions of the circulation that even after ordinary methods of treatment have failed the injection under antiseptic precautions of strong solutions of certain alkaloids gives satisfactory results. The alkaloids which have so far been tried are caffeine, pilocarpine, and atropine—that is, drugs with a powerful direct and general action on the central nervous system and the functions which it controls. In order to avoid too rapid spread of the drug to the higher centres it is important to give it in a solution isotonic with the cerebrospinal fluid, and for this purpose it is necessary to carry out cryoscopic experiments to determine the osmotic pressure of the solutions. In experiments on rabbits it was found that

solutions of these three alkaloids in small doses produced the usual effects of these drugs with a much greater rapidity and intensity and with more permanent results than when given by any other channel. In a case of cardiac failure and renal incompetence with general œdema, ascites, and uræmic symptoms in man, the intra-arachnoid injection of a solution of 0·25 centigramme of caffeine per cubic centimetre (*0·25 centi-cube*), followed on two occasions at intervals of three days by injections of 0·40 centi-cube, re-established the renal functions, raised the blood pressure, and facilitated the action of ordinary methods of treatment which had previously failed. It is needless to insist on the importance of rigid aseptic precautions in applying this method of treatment. The solutions should be from one-third to one-half or even as much as a cubic centimetre in volume, they should be neutral or slightly alkaline in reaction, and must be freshly prepared. Acid solutions of alkaloids, particularly quinine solutions, produce in animals immediate death. These observations by Dr. Glover, admittedly incomplete though they are, are yet of great interest as indicating a method of introducing drugs as a last resort in cases where their administration by ordinary channels is ineffective or impracticable. Lumbar puncture is now well known to be a comparatively simple process and often of great value as a diagnostic or therapeutic means. The administration of drugs in this manner should therefore also be a matter of very little difficulty. Although the method is not entirely new, since the intraspinal injection of cocaine has been extensively tried abroad, its application to the treatment of general conditions is an advance. Apparently, from Dr. Glover's account, if the precautions which he advises are adopted the method is harmless; at the same time it is obvious that if acid solutions like those of quinine have serious results the utmost care will have to be exercised in the use of this method.

THE SCOTTISH POOR-LAW MEDICAL SERVICE.

IN THE LANCET of Jan. 9th we referred to the case of Dr. J. F. D. Macara, the Poor-law medical officer of Durness in Sutherlandshire. Dr. Macara had been threatened with dismissal by his parish council in the high-handed manner which is legal in Scotland. Dr. Macara, however, found means of commencing an action against the council and an injunction was obtained restraining the council from appointing anyone in Dr. Macara's stead. The parties eventually came to an agreement on the subjoined terms:—

1. The council to rescind their minutes of Nov. 6th and 20th, 1903; to withdraw the threatened dismissal of Dr. Macara and to reinstate him in his office. Although the council cannot legally enter into any binding contract in regard to the future duration of Dr. Macara's tenure of office it is honourably understood between all parties concerned that the council will not seek to procure Dr. Macara's dismissal in consequence of anything that has hitherto transpired, and that the settlement now come to is *bonâ fide* intended to end all ill-feeling between the parties.
2. The council to withdraw all charges made against Dr. Macara, and in particular their charge of "breach of duty" against him in respect of the dictated certificate regarding Barbara Macpherson, and to acknowledge Dr. Macara's *bona fides* in all his actings throughout the present dispute.
3. Dr. Macara to render quarterly an account for medicines and medical and surgical appliances supplied by him to paupers and the same to be settled regularly by the council.
4. The terms of settlement to be communicated to the *Scotsman* and *Glasgow Herald* newspapers and the local press, and to THE LANCET and *British Medical Journal*.
5. The council to pay the account of expenses incurred to Messrs. Inglis Orr and Bruce, W.S., in connexion with these actions as between agent and client, or in the option of the said Inglis Orr and Bruce the sum of £100 in full of all their said expenses.
6. The foregoing terms of settlement to be minuted verbatim in the minute-book of the council and to be given legal effect to by formal resolutions of the council. The minute-book containing said minutes and resolutions engrossed therein to be exhibited to Dr. Macara, who may make copies or extracts therefrom.
7. On the foregoing terms being implemented both parties will consent to the action of suspension and interdict and the action of reduction being dismissed by joint minute, and Dr. Macara will consent to waive his claim to damages against the council in respect of his attempted dismissal.

We congratulate Dr. Macara upon the result of his action, for to him, perhaps, more than to anyone else is due the fact that the grievances of the Scottish Poor-law medical service have become so widely known. But there can be no safety for Scottish Poor-law medical officers until their dismissal has to be approved by the Local Government Board in the same manner in which it now has to be approved in England and in Ireland.

TRAUMATIC RUPTURE OF INTESTINE.

THE *American Journal of the Medical Sciences* for June contains an important paper by Dr. E. J. Senn on Traumatic Intestinal Rupture with special reference to Indirect Applied Force. The subject merits greater attention than it has received. The degree of external injury of the abdomen is no criterion of the gravity of the internal injury. A slight abdominal contusion may be followed by great damage of the underlying viscera, while a crush sufficient to fracture neighbouring bones may leave the viscera intact. Intestinal injuries may be due to direct or indirect force. In the former the force is applied through the abdominal wall against the exposed intestine; in the latter the force is applied to the buttocks or the lumbar region. The possibility of rupture of the intestine being produced in the latter manner is liable to be overlooked. After a careful search Dr. Senn could find recorded only two well-authenticated cases. Dr. J. F. Bottomly has reported a case in which a patient was struck in the back below the left scapula by an approaching wagon and on operation perforation of the first portion of the jejunum was found.[1] Dr. Westbrook has described a case in which a man was struck in the lumbar region by a wagon-pole and the necropsy revealed a rupture at the junction of the duodenum and jejunum sufficient to admit two fingers.[2] Dr. Senn now reports the following case which shows the possibility of slight force applied to the buttocks producing laceration of intestine. On July 17th, 1903, at 6 P.M. a married woman, aged 28 years, while hurrying slipped and fell on the right buttock. She had just taken a hearty supper. No serious symptoms were noticed and she retired to bed as usual. At midnight she awoke with severe abdominal pains and vomited. On the following day she was seen by her medical attendant who prescribed opiates and turpentine stupes. The pains increased and she rapidly grew worse. On the 19th Dr. Senn saw her in consultation. She had an anxious appearance and complained bitterly of abdominal pains. The temperature was 104·3° F. and the pulse was 140. There were diffuse abdominal tenderness and marked tympanitis, especially in the region of the appendix. But for the history of injury appendicitis would have been diagnosed instead of perforative peritonitis. On opening the abdomen cloudy fluid escaped but no gas. On separating filmy adhesions of the great omentum there was a gush of fluid loaded with flakes of fibrin. The small intestine was greatly distended, of a bluish-black colour, and covered with lymph. After long exploration a sudden escape of gas was noticed deep down in the pelvis. Fæces were found in the peritoneal cavity and a small perforation of the size of the little finger nail in the jejunum. The abdominal cavity was cleansed by dry sponging, the perforation was sutured to the abdominal wound, and drainage was provided. Enterostomy was performed in consequence of the collapsed state of the patient and the paralytic state of the intestine. The patient recovered with a fistula which required a second operation. The fact that the fall was not severe was borne out by the absence of soreness or bruising of the buttock. The state of the abdominal muscles at the time of an injury plays an important part in the result. A blow on a rigid abdomen loses considerable force, while a blow on a relaxed one is transmitted with full force to the underlying intestines. Sometimes the bowel is not ruptured

[1] Boston City Hospital Reports, 1902.
[2] Brooklyn Medical Journal, 1902, p. 417.

but only contused. Cases are recorded in which after an injury the patient did well for days and even weeks and then symptoms of perforative peritonitis arose and the necropsy showed a perforation. Mr. Thomas Bryant has recorded two cases in which such perforation took place on the fifth and nineteenth days after the injury respectively.[3] The contusion no doubt led to necrosis of the intestine. Severe abdominal injuries first produce shock. The more serious symptoms soon pass away unless there is injury of the abdominal viscera or internal hæmorrhage. If there is intestinal rupture with fæcal extravasation the symptoms of shock merge into those of general perforative peritonitis. In cases of contusion or incomplete rupture of the intestine after the symptoms of shock subside there is some pyrexia in consequence of the local peritonitis but there is not much change in the pulse. Constipation or diarrhœa may be present and possibly blood-stained stools. There are slight abdominal pain and tenderness. Such cases usually follow a favourable course. On the other hand, in cases of immediate extravasation of the intestinal contents there is at once excruciating pain, the face is pale, the pupils are dilated, the respiration is superficial, the pulse is small, and the temperature is subnormal. Vomiting soon follows. The abdomen is first rigid; later it is distended. The prognosis of rupture of the intestine depends on early diagnosis and operation. Thus according to Siegel's statistics the mortality of cases operated on in the first four hours was 15·2 per cent.; within five to eight hours, 44·4 per cent.; within nine to 12 hours, 63 per cent.; and later, 70 per cent. In all cases of abdominal contusion the rule should be to give a guarded prognosis, to keep the patient under careful observation, and upon the least suspicion of rupture to operate.

VACATION COURSES IN BACTERIOLOGY AND PATHOLOGY AT KING'S COLLEGE.

A COURSE in practical and clinical bacteriology will be held daily at King's College, London, from 10.30 A.M. to 1 P.M., commencing on Wednesday, August 3rd, and ending on Saturday, August 13th. The course will consist of lectures, demonstrations, and practical work; in the latter the members of the class will make for themselves permanent preparations of the chief pathogenic micro-organisms and will carry out the principal manipulations employed in bacteriological investigations. The fee will be £3 3s., inclusive of materials. Names should be sent in as soon as possible to the secretary or to Professor R. T. Hewlett. A course in clinical pathology will also be held on six afternoons from August 3rd to 13th from 2 to 4.30. The course will consist of demonstrations and practical work; the inclusive fee will be £2 2s. If both courses are taken the inclusive fee will be £4 4s.

OPERATION FOR PERFORATED GASTRIC ULCER.

THE mortality after operation for perforation of a gastric ulcer appears to be diminishing. Mikulicz was the first to operate for this condition in 1880 but it was not till 12 years later, in 1892, that we have any record of a successful case, when Kriege sutured a perforation and the patient recovered. At first the mortality of recorded cases was very high and in all probability the mortality of all cases treated by operation was still higher, for unsuccessful cases are never so readily recorded as the successful. Several factors have concurred in lowering the death-rate. Experience has taught us the best methods of operating and practice has enabled us to operate more quickly, but probably the chief factor in lessening the mortality is the fact that cases are operated on at an earlier period after perforation and as the length of the interval between the perforation and operation is the chief element in the prognosis we must look upon any reduction of this interval as a potent agent in reducing the death-rate. Practitioners are more ready in invoking the aid of the surgeon now that they are acquainted with the value of early surgical treatment and the public more readily submit to operation. It is not improbable that the mortality in hospital practice after operation for gastric perforation is less than in private practice, for in hospitals there is much less delay in preparing for an operation than is generally necessary when an operation has to be performed in a private house. In the present issue of THE LANCET are recorded the notes of nine consecutive cases of operation for perforated gastric ulcer at St. George's Hospital. Eight of these patients recovered and the only death occurred in a patient in whom perforation had probably taken place 48 hours previously and who had had to travel about 100 miles before operation. These results are excellent and reflect credit on the surgeons who performed the operations.

[3] THE LANCET, Dec. 7th, 1895, p. 1419.

OPTICIANS AND SPECTACLE PRESCRIBING.

THE following report on Sight-testing by Spectacle Makers has been issued by the Ophthalmological Society over the signature of the President of the society, Mr. John Tweedy, P.R.C.S. Eng.:—

> The Opthalmological Society of the United Kingdom, having had its attention called to the fact that the Worshipful Company of Spectacle Makers proposes to include the subject of sight-testing in the examination for its diploma, and to give certificates of efficiency therein, wishes to express its opinion that, while approving of any measures which tend to increase the efficiency of opticians in their technical work, it considers that it would be misleading and dangerous to the public to countenance any proposal to certify as competent to advise and prescribe for defects of vision anyone who has not had an efficient medical and surgical training. A diploma such as the Worshipful Company of Spectacle Makers proposes to grant may lead the public to believe that its possessor is competent to diagnose and treat diseases of the eye, and thus grave consequences might follow.
>
> Errors of refraction often occur in association with diseases of the eye. The mere correction of the former by means of spectacles would ignore a condition which might destroy sight, or even leave the life of the patient in danger. Moreover, many errors of refraction can only be accurately measured after the local use of a drug, which should only be employed or prescribed by a medical man, since its indiscriminate use is calculated to excite one of the gravest diseases to which the eye is liable. Finally, on general grounds it is undesirable and dangerous to encourage the public in the belief that affections of any organ of the body can be safely treated by anyone unacquainted with its anatomy and physiology, and with the various morbid conditions to which it is liable.

This, of course, is the exact position which THE LANCET has always taken up. That the widespread need for reading spectacles in middle age can to a great extent be met by treatment based upon optical rules of thumb does not alter the fact that the eye is a living organ as well as an optical instrument. As a living organ it is subject to malformations and diseases which complicate, and are complicated by, its optical defects. It is impossible for anyone to deal with the latter who is not able also to appreciate the existence and influence of the former.

A TELEGRAM from Lord Milner, received at the Colonial Office on July 9th, states that for the week ending July 9th the plague return for the Transvaal was as follows: New cases 2—namely, 1 white and 1 coloured person—making the present total of suspected and proved cases 149—namely, 28 white and 121 coloured persons. There were no deaths during the week.—As regards Hong-Kong, a telegram from the Acting Governor, received at the Colonial Office on July 12th, states that for the week ending July 9th there were 24 cases of plague and 21 deaths from the disease.

DEFECTIVE SIGHT IN SCHOOL CHILDREN.—At the meeting of the Plymouth education committee held on July 4th it was decided to engage the services of an ophthalmic surgeon at a salary of £40 per annum for the examination of cases of defective sight in the elementary schools of the borough.

THE IMPERIAL CANCER RESEARCH FUND.

THE third meeting of the general committee of the Cancer Research Fund was held at Marlborough House on July 8th. H.R.H. the Prince of Wales, the President, occupied the chair and amongst those present were Adeline Duchess of Bedford, Lord Strathcona, Sir William Broadbent, Sir William Church (President of the Royal College of Physicians of London), Sir Alfred Cooper, Sir Henry Howse, Sir Douglas Powell, Mr. Julius Wernher, Mr. John Tweedy (President of the Royal College of Surgeons of England), Mr. Henry T. Butlin, Mr. John Langton, Mr. R. Littlejohn, Professor J. McFadyean, Dr. P. H. Pye-Smith, Mr. S. Neumann, Professor G. Sims Woodhead, Mr. Henry Morris (honorary treasurer), Dr. E. F. Bashford (general superintendent and director of the Central Laboratory), and Mr. F. G. Hallett (secretary).

The SECRETARY having read the minutes of the last meeting, which were duly confirmed,

The PRINCE of WALES called upon Sir William Church to move the adoption of the report, an abstract of which follows.

ABSTRACT OF THE SECOND ANNUAL REPORT OF THE CANCER RESEARCH FUND.

Report of the Secretary.

The executive committee has met every month in this the second year of the existence of the Fund, except in August and September, and at each meeting the general superintendent, Dr. E. F. Bashford, submitted a report of the work in hand for the consideration of the committee. The work, which was always fully explained and discussed, is set forth in Dr. Bashford's report and shows the scope of the organisation for carrying out the original intention of the scheme, for extending the investigation to all parts of the world, for encouraging others by means of grants, for pursuing some definite lines of inquiry, and for guiding public opinion on matters relating to the subject, as well as the investigation of the constantly reported cancer "cures." At the meeting in July the appointment of an actuary was authorised for statistical purposes and the laboratory staff was increased to meet the demands of the research. The negotiations for the acquisition of a farm where animals suffering from cancer may be kept under observation for therapeutical and other purposes were brought to a successful conclusion in November and at the December meeting the lease was agreed to and possession was obtained. At this meeting it was also decided that any scientific publications relating to the work of the Cancer Research Fund shall be made officially in the name of the executive committee. The conditions under which grants from the Research Fund may be made to those who are working at problems bearing on cancer were determined at the meeting in March and are as follows: 1. Grants shall only be made to individual workers for definite work, the nature of which shall be stated at the time of application, and which shall receive the approval of the executive committee. 2. The results of work done by the aid of such grants shall be submitted to the executive committee. 3. The publication of such results, if sanctioned by the executive committee, shall be made in the scientific reports of the Cancer Research Fund or in such other manner as the executive committee may approve. 4. Any material supplied by the director or executive committee for investigation shall be considered the property of the Fund and any results of research in connexion therewith shall be acknowledged as having been done in connexion with the Cancer Research Fund. The first grant of £200 was made on the recommendation of the pathological subcommittee to Professor J. Brentland Farmer, F.R.S., of the Royal College of Science to enable him to continue his researches on the cytology of malignant and other growths. Dr. W. Cramer, Ph.D., was in April appointed assistant to Dr. Bashford to carry out special bio-chemical investigations.

Report of the General Superintendent.

Except those portions of the investigation which it has been necessary to conduct at the farm, the work has been carried out in the office and central laboratories placed at the disposal of the Cancer Research Fund by the Royal Colleges of Physicians and Surgeons. This accommodation has been fully occupied and has proved eminently suitable and convenient. The possession of a farm for accommodating the larger kinds of animals has been a necessity. Up to February this accommodation continued to be generously provided by a member of the executive committee. Since that date the farm secured by the executive committee has been adapted to the purposes of the investigations and a number of animals has been under constant observation there. The comparative biological and experimental line of inquiry has been proved to have the value which was predicted for it when starting the work of the Cancer Research Fund and to which attention was drawn a year ago. Facts have been thereby brought out which have a fundamental bearing on several of the crucial problems of cancer and give definite indication of the line for future inquiries. The discovery of a fertilisation process in transplanted tumours explains much that has hitherto been absolutely obscure. The investigations which have been made during the past year may be conveniently described under separate headings.

I. *Experimental work on the nature and processes of growth of cancer.*—[The work referred to under this heading has already appeared in THE LANCET.[1]]

II. *Experimental investigations bearing upon the diagnosis and treatment of cancer.*—An essential preliminary to the problems involved in attempting to modify the growth of cancerous tissue must be the possibility of producing at will by transplantation the disease in animals in order to provide an adequate supply of tumours. This has been accomplished in certain experiments which have been made and is being further tried in experiments in progress. By means of the experimental observations thus rendered possible, various procedures which may legitimately be conceived to modify the powers of growth of transplanted tumours, or to yield specific evidence of their presence, have been studied. Thus a serum has been obtained capable of acting upon the tumour cells in the test-tube. Attempts, however, to produce the same effects in actively growing tumours in living animals have yielded negative results. The artificial transplantation of malignant tumours has been utilised to seek for specific evidence of their presence in an otherwise normal animal. The only apparent consequence of successful transplantation is the development of a lump at the site of inoculation, unaccompanied by any constitutional disturbance of a specific nature. Subsequent microscopical examination is necessary to determine the nature of the lump. In the number of animals which have been studied while suffering from primary new growths no specific symptom of the presence of the latter has been observed, and the conclusion of necessity is drawn that cancer *quâ* cancer in man and animals is still without a specific symptomatology. This conclusion loses its apparent surprising features when the results of the examination of transplanted tumours and of primary tumours as regards their microscopical characters are borne in mind. As already stated, the cells introduced by transplantation themselves grow and produce the new tumours, and the latter present characters identical with those of the tissue in which the primary tumour arose and never cell-masses of heterogeneous type. Artificially transplanted tumours afford the most favourable circumstances for testing the claims made on behalf of various reputed empirical therapeutic methods. Of these the number brought to the notice of the Cancer Research Fund is very great. It has been necessary to examine in detail the action of radium bromide. Tumours of the mouse transplanted subcutaneously have been subjected to the action of radium bromide and in some cases the rate of growth has been diminished; in other cases it has ceased altogether and the tumour has practically disappeared. In other cases, again, no action has yet been observed. It has been necessary to determine in how far the susceptibilities to radium rays of the tumours and other tissues vary and for this purpose control experiments are being carried out. They are not yet concluded but there is no doubt that the action of radium is not limited to cells of the malignant tumours. Subcutaneous transplanted tumours of small size are peculiarly accessible to, and favourable for, the manifestation of the action of radium but afford no ground for predicting the curative effect of radium upon deep-seated primary tumours.

III. *Statistical investigations.*—The method of tabulating malignant new growths employed in the case of the hospital statistics given in the first annual report has been adopted by

[1] THE LANCET, Feb. 13th, 1904, p. 413, et seq.

Dr. J. F. W. Tatham in recording the mortality from cancer in England in the Sixty-fourth Annual Report of the Registrar-General for 1901. At the request of the statistical sub-committee, Dr. Tatham a year ago reported what steps could be taken to secure a fuller utilisation of the data on which the returns of the Registrar-General are based. At the time of drawing up the last annual report a special grant had been made by the executive committee for the employment of certain clerks in the General Register Office to abstract the facts from the registers, setting forth particulars of the type of disease and organs affected, with the object of ascertaining the relative incidence of fatal cancer on the more important occupations. Dr. Tatham has found it needful, however, to have this investigation made for the forthcoming census reports on a larger scale than was originally intended. The investigation is still proceeding, and in the circumstances it has not been necessary for the Cancer Research Fund to defray the expenses.

Hospital statistics.—It has been possible to devise a plan whereby many of the London hospitals place at the disposal of the Cancer Research Fund succinct accounts of all the cases of cancer which have been subjected to microscopical examination. The arrangements have been in working order for about nine months. The practical result of the scheme is a card index recording all the important features of each case, provided by the registrars of the different hospitals. This admits of the ready analysis of the facts in various directions—e.g., organ, age, and sex incidence, comparison of the clinical manifestations with the result of microscopical examination, influence of heredity, locality, &c. The total number of cards which have been received is 1913. The segregation of malignant new growths into those with characteristic manifestations and those without, adopted in the first annual report, has proved justifiable and instructive. It has revealed the relatively frequent occurrence of conditions simulating malignant new growths and therefore explains many reputed cures of cancer.

The ethnological distribution of cancer.—It is too early to draw conclusions on the relative frequency of cancer in the various races of mankind from the facts which have accumulated on the incidence of cancer in various uncivilised native races of the empire. It may be pointed out, however, that it is just where this evidence is most valuable that the various officials and private individuals who are engaged in searching for it meet with difficulties in their observations which only the most energetic efforts can overcome. It is therefore interesting to know that specimens of cancer—carcinoma and sarcoma—have been obtained for the first time from certain native races inhabiting various tropical regions.

The nature of the discrepancy in the recorded cancer death-rate in Ireland and Great Britain.—By persistent inquiry it has been possible to obtain from most of the hospitals and dispensaries in Ireland data regarding the total number of in-patients and the total number of cases of cancer occurring among them. The returns from general hospitals give a total of 110,546 in-patients and of 3017 cases of cancer. There is thus one case of cancer in every 36 patients. The corresponding number of in-patients admitted to London hospitals gives one case of cancer in 20 in-patients. The discrepancy between the recorded incidence of cancer in England and Ireland exists also in the extent to which cancer is recorded in the hospitals of the two countries. In the course of the inquiry the fact has been ascertained that autopsies are performed with minimal frequency in Irish hospitals, whereas in London hospitals they are responsible for adding largely to the certified number of deaths from cancer. Further, in Ireland microscopical examination is scarcely carried out at all, and in London, together with the number of autopsies, is responsible for adding over 30 per cent. to the total number of cases of internal cancer recorded in hospital. A general review of the facts elicited on the diagnosis of cancer in London and Irish hospitals reveals the magnitude of the differences which may exist between the recorded frequency of cancer and its absolute incidence. Procedures which in London and England generally make the recorded frequency approximate more nearly to the absolute incidence are inoperative in Ireland. The discrepancy between the recorded frequency of cancer in London and Irish hospitals can be explained solely by the heavy disadvantages under which the search for cancer is carried out in the latter. The only conclusion possible is that among that proportion of the Irish population which does not have access to hospitals a still higher percentage of cases of cancer remains unrecorded, with the result that the relative frequency in hospital and the relative infrequency outside of hospitals together combine to give a lesser recorded cancer mortality throughout Ireland generally. In all probability the more favourable conditions prevailing in England if they existed in Ireland would quickly demonstrate there a cancer death-rate proportionately higher than that of England, in accordance with the higher age constitution of the Irish population.

The bearing of the provisional results upon the reputed increase of cancer.—The statistical and experimental investigations, especially those relating to the transmissibility of cancer, have a bearing upon the interpretations which others have put upon the increase in the recorded number of deaths from malignant new growths. The results of the investigation into the difference in the recorded death-rate from cancer in England as compared with Ireland has proved the absence in the latter country of various factors which are known to augment the number of deaths assigned to cancer in England; and the inference is justifiable that cancer is less frequently recorded in Ireland because the means for observing it are less adequate than in England. Stated generally, the facts ascertained show a gradual diminution in the precision and completeness with which cancer is recorded among the inhabitants of England, of Ireland, and of various outlying parts of the empire, till a minimum is reached in the case of the natives of certain tropical colonies. A similar gradation is evident in the case of the domesticated and wild animals. The extent to which cancer is recorded is inversely proportional to the difficulties which have to be overcome in obtaining information.

Report of the Honorary Treasurer for the Year ending June 24th, 1904.

Twelve months ago the donations amounted to £49,686 9*s.* 6*d.*; the interest and dividends derived therefrom gave £896 13*s.* 6*d.* and the total expenditure had been £997 2*s.* 3*d.*, thus the working expenses had encroached upon the capital to the extent of £100 8*s.* 9*d.* During the past year donations have been added to the extent of £25,334 3*s.*, thus bringing up the total amount received to £75,020 12*s.* 6*d.* The interest on deposit account and dividends on invested stock have yielded during the year £1727 8*s.* 5*d.*, whilst the total expenditure has reached the sum of £2987 10*s.* 6*d.*, showing a still further encroachment upon capital of £1260 2*s.* 1*d.* It is impossible to refer to the donations received during the financial year now just concluded without particularising in terms of the deepest gratitude the munificence of Mr. William Waldorf Astor who, in August last, contributed the sum of £20,000.

As the Cancer Research Fund has not had the advantage possessed by the Royal Commission on Tuberculosis—namely, a complete farm placed at its disposal for the purpose of carrying on investigations for an indefinite time—its farm account will necessarily be an annual charge upon income. The scientific staff, already fully if not, indeed, over worked, cannot possibly be reduced, but, on the other hand, in all probability will have to be increased as times goes on; whilst the acquisition of sufficient statistical material of a perfectly reliable character will demand a continuance for at least four or five years of the assistance of the registering officers of the metropolitan hospitals. Though only the very small fee of 2*s.* 6*d.* is paid to these gentlemen for each properly completed report—recording the clinical, pathological, and microscopical details of cases of cancer—yet the total sum is not likely to be less than £200 per annum.

It ought to be mentioned that all the laboratory and the secretarial accommodation of the Cancer Research Fund has hitherto been provided by the Royal College of Physicians of London and the Royal College of Surgeons of England free of rent and, indeed, without charge of any kind for fuel, lighting, and other incidental expenses; whilst the executive committee—members of which attend the monthly meetings with great regularity—give their services gratuitously. One of the members of the executive committee, who desires that his name should not be mentioned, has put the fund under a great debt of gratitude by most generously providing farm accommodation from the outset of the investigations up to February last, when the animals were able to be received upon the farm now rented by the Cancer Research Fund.

Every effort is made by the executive committee to keep down expenses as far as is consistent with efficiency and the wide scope of research, but in spite of the strictest economy the annual expenditure in the immediate future cannot be

less than £3000. It is therefore very disappointing that the capital sum required to yield an income equal to the expenditure is still far short of the necessary amount. From the outset the promoters of the Cancer Research Fund realised that £100,000 is the lowest sum which would be sufficient to defray expenses if the capital was to be left untouched. It is, and has from the first been, a great object in view not to expend any part of the principal, so that in the event of the nature and cause of cancer being discovered the fund should be available for the utilisation and application of this new knowledge in preventing and curing the disease; or that it should be reserved for the purpose of expending the income in conducting other researches of similar importance. It is a notable and significant fact that up to the present time only 328 individuals and ten City guilds have contributed to the fund. The excellence and large amount of work already accomplished by the scientific staff is most encouraging for the future and affords good reason why, before another annual report has to be written, at least the minimum sum needed for the complete and continuous prosecution of the research ought to be subscribed.

Sir WILLIAM CHURCH then moved the adoption of the report, commencing by regretting the absence of the Prime Minister to whom this duty had been allotted. With regard to the statistical investigations of the Cancer Research Fund, which do not seem to point to an actual increase in the number of deaths due to cancer, he expressed himself as exceedingly anxious that the position should not be misunderstood by those present at that meeting or by the public. Cancer, he said, may or may not be on the increase, but, he pointed out, we are not in a position to give a definite answer to that question, for this reason—that the statistics of cancer are not trustworthy for purposes of comparison—that is to say, we cannot compare the rate of deaths attributed to cancer now with the rate of deaths attributed to cancer 30, 20, or 10 years ago, and continued as follows with special reference to the statistics of cancer at the London hospitals. Of the malignant growths taking place in some accessible positions 91 per cent. have characteristic manifestations whereas of those which are inaccessible—that is to say, where the growths cannot be seen or readily detected—there are only 60½ per cent. which have characteristic manifestations. If you take the whole of those three groups together you find that of them 89 per cent.—really you may say 90 per cent.—present characteristic manifestations. In other words, of the growths in accessible or in what are termed intermediate positions 90 per cent. odd have characteristic manifestations and are recognised as cancer, and 8 per cent., or very nearly 9 per cent., have no characteristic manifestations and consequently may escape observation; and of those in inaccessible positions very nearly 39½ per cent. have no characteric manifestations and may escape observation. Now these are not cases such as those collected by the Registrar-General—cases of deaths attributable to cancer or cases in which cancer is supposed to exist but they are all cases in which the presence of the disease has been verified by microscopical examination. So that, to sum it up very briefly, if you take the whole of those figures you find that of the malignant growths which are under observation in the London hospitals there are 22 per cent. which are not recognised. Now that is very striking, and I think we may safely conclude, considering the difficulty of obtaining accuracy in these statistics in the London hospitals where the patients are under the observation of most competent persons not only of those who treat them but also of students who are daily looking out for symptoms, that the error is greater in the statistics of the general population of the country. Sir William Church concluded his remarks on the prevalence of cancer by expressing a wish that it should not go out authoritatively that the Cancer Research Fund had said that cancer had diminished, because it had been admitted that there are no data at present by which we can form an opinion as to whether the alleged increase is real or not. He then alluded in some detail to the excellent biological work done by Dr. Bashford and Dr. Murray in connexion with cancer, and reference to the publication of which in THE LANCET has already been made, and concluded by summarising the present position with regard to treatment and by alluding to the need for more money. Sir William Church made quite clear to his audience that as yet no curative methods are recognised as superseding surgical interference, especially saying of radium "that it has an effect upon cancer cells is undoubted but this is an effect which it also has on normal tissues. It cannot be in any way regarded at present as having shown any indication that it is in any way curative of the disease. Cancer cells appear to undergo absorption and diminution under its influence but so do also the normal cells and tissues."

Sir HENRY HOWSE, in seconding the motion for the adoption of the report, referred to the possibility which has been shown in the course of the last year of transplanting cancer in animals of a similar species and so carrying it on. It is not only the fact that the transmissibility of cancer has been proved, he said, but this fact opens up a great possibility in the future to investigations which would otherwise be extremely difficult.

The motion was carried unanimously.

Mr. W. Waldorf Astor, who recently gave £20,000 to the fund, having been elected a Vice-President and Mr. Watson Cheyne having been re-elected a member of the executive committee,

Lord STRATHCONA then moved a vote of thanks to H.R.H. the Prince of Wales for presiding over the meeting, and pointed out that the countenance and support given to the work by His Royal Highness would have the best effect in inducing people not only in England but in all parts of the world, in India and in our colonies, to give their attention to a very important matter.

Mr. TWEEDY having briefly seconded the motion it was carried with acclamation.

The PRINCE OF WALES then said: My Lord and Gentlemen,—In expressing my gratitude for the hearty way in which this vote of thanks has been proposed and seconded by my noble friend Lord Strathcona and Mr. Tweedy, and received by those who have kindly supported me here to-day, I wish to say what pleasure it gives me, as President of the Cancer Research Fund, to be present at this the third meeting of the general committee. The report which has been circulated among you, apart from its technical details, contains information which cannot fail to be of much importance to the public generally, while we who are met here to-day have listened with interest to the excellent speech which has been made by Sir William Church in moving its approval and adoption. I know you will join with me in congratulating the executive committee, the general superintendent, treasurer, and secretary on the satisfactory results of their labours during the past year. Without presuming to tread upon the ground of so essentially a technical character as that of the report, I may say that the progress which it records is of good augury, for I gather that the facts which have been ascertained showing how cancer cells propagate themselves may be of immense importance in obtaining a true knowledge of the disease. The investigations of the Cancer Research Fund have brought to light in an unexpected degree how universal the disease is. We now realise that it exists in all parts of the globe, in man and in animals, wild as well as domesticated. It has been said that this terrible scourge is the result of civilisation, but the research has obtained reliable evidence of cases, amongst others, in tribes in the Hinterland of our African protectorates, far removed from any influence of civilisation. Recognising how world-wide the disease is, the Research Fund has wisely extended its inquiries to the farthest limits of the Empire, as shown by Dr. Bashford's report. Those endeavours have been fully seconded by the authorities in India, of our colonies, of our various protectorates, and by the willing support of the Ministers at the head of these respective departments at home. I also wish to express my satisfaction at the hearty coöperation between the workers of the Research Fund and our friends in America and in the principal European countries. We owe much to the colonies. One of the principal donations to the fund came from the representative in this country of Canada. The Government of Hong-Kong has placed an annual sum of £30 on the estimates as a contribution to the fund. New Zealand sent us some of the first and most valuable material on the occurrence of cancer in fish. Considering the far-reaching interest in the subject and that our organisation to be successful must be extended throughout the empire, it was felt that further advantage to its labours might be secured if an addition to its title could be sanctioned, and I am glad to have this opportunity of stating that the King has approved of the fund being known for the future as the "Imperial Cancer Research Fund." There will also be a further advantage in this designation, that the work of the Research Fund will be distinguished from other similar undertakings, most valuable and excellent as they are, but which

from their nature are more local in their scope and limited in their resources. But the continued progress of the investigation makes ever-increasing demands upon the fund, and the treasurer's report points out that up to the present only 328 individuals have contributed to the fund. I am sure no words are required to plead the cause of this great national work, so important to the whole race of mankind. There are few of us, unfortunately, who have not had brought home to us the terrors of this fatal, mysterious disease; and does it not behove us, in the interests of humanity and science, to assist, to the utmost of our means, those who are giving much labour and valuable time to the organisation of research, as well as to those who consent to devote their whole lives in endeavouring to determine what so far has proved to be one of the insoluble problems of human life?

The proceedings then terminated.

FRUIT AND FILTH.

(FROM A CORRESPONDENT.)

To the uninitiated fruit-picking calls up pleasant mental pictures of picturesque crowds of country people in sun bonnets and bright coloured aprons, with laughing eyes and brown faces, coming home laden with baskets of the rich, red strawberries or the even more brilliantly coloured red currants or other tempting fruit—all clean and sweet and wholesome. As a matter of fact the true state of the case is very different; the greater part of the fruit that comes to London is picked and handled for market and made into jam by the very filthiest people in the whole community. There are exceptions here and there, but I am well within the mark in saying that the greater proportion of the fruit grown in Kent is picked by people whom the readers of this article literally would prefer not to touch even with a pair of tongs. Beginning at Orpington and the Crays and going south and east through the fruit-growing districts the observer will see at intervals of a mile or two long rows of iron shanties, each about 7 feet by 13 feet, which, did he not know, he would probably consider to be a particularly bad kind of pig-sty and he would reflect and possibly write letters to the newspapers upon the great increase in pig-keeping in Kent (Fig. 1). He might also, if he were of an altruistic turn of mind, comment upon the cruelty of keeping pigs during the hot weather in boxes made of corrugated iron. In sober truth these are the dwellings of the people who pick the fruit or, to be strictly accurate, the greater part of it. As soon as the strawberries commence to ripen the very lowest of the slum dwellers move out along the country roads into Kent and take up their abodes in the corrugated iron shanties ready for the fruit-picking. A few of the more aristocratic bring tents in which I have even seen a bed, whilst a still smaller proportion come in caravans. The pickers, or, to give them their Kentish appellation, "pykers," who live in caravans, would amount to certainly not more than 1 per cent. and the tent-dwellers might be reckoned in about the same proportion; the great majority live in the shanties. They all belong to the floating, wastrel population who live by doing odd jobs and sometimes make pretty nearly enough during the summer at fruit-picking and hop-picking to carry them through the winter season. As soon as the soft fruit season is over they move farther down into the country to pick the hops. The filthiness of the hop-pickers is proverbial, but the fruit-pickers are as filthy as any of the hop-pickers; in fact, they form the lowest stratum, as many of the better-class hop-pickers come down for the hop-picking alone, regarding it as a yearly holiday.

FIG. 1.

A view of the pickers' shanties.

On entering one of the little 13 feet by 7 feet dwellings, as well as you can on account of the crowd of urchins—barefooted, ragged and unwashed, with bright eyes peeping through matted hair and looking perhaps all the brighter from the long-standing dirt on their faces—you will see probably one or two boxes turned up on end for seats and along one side bunks formed of strips of coarse canvas suspended one over the other as they are on board ship. The people pack pretty closely and, including children and babies, there are generally six or eight human beings occupying one shanty. My wife tells me that she has seen as many more people huddled up in one of these shanties in the winter, but they could hardly have all slept in one of them. I may mention that my wife was obliged to discontinue her investigations on account of the fleas which she used to bring home on every occasion, "not in single spies but in battalions." A considerable number of the fruit-pickers inhabit these wretched shanties all the year round, in the Swanley district at all events, getting a few odd jobs in the fields and at sorting potatoes, but living to some extent on the savings which they have made from the fruit season. As may well be imagined, the sanitary arrangements are of the most elementary description, although as the people are living in the open air, usually removed at some distance from other dwellings, it may not be a matter of very great importance, but their general condition is indescribably wretched. On my last visit to one of the Swanley "compounds" I watched a picker woman, having done her day's work in the strawberry fields, seated on a box and searching for lice in the tow-coloured hair of a little girl who was kneeling in front of her. This woman must have belonged to the aristocratic and cleanly section, for I am quite certain that the majority of them would not trouble themselves about such trifles as this.

There are usually two pickings of strawberries and other soft fruit every day except Saturday and Sunday during the season, the first as soon as there is sufficient light to see to pick the fruit, commencing, say, at 3.30 A.M., and the second during the morning. The first picking serves for the early trains which leave between 6 and 8 A.M. for the London market and the second picking for the London market to a certain extent and for the fruit trains which go to Manchester and the North. For the first picking the "pykers" tumble out of their bunks—men, women, and children—and hasten to the adjoining fields. They are provided with small chip baskets, which are emptied into larger baskets placed at the ends of the rows or in other convenient situations, and are paid at piece rates. Most of the "pykers" have large families and they all help in the picking as soon as they are old enough to toddle. In a good season a family will make quite good wages whilst it lasts, which is not for more than two months altogether, some families making as much as £2 per week. As their expenses need amount to very little some of the more thrifty manage to put by (for them) a substantial sum. When the larger measures are filled they are taken to a shed where the overseer gives tallies in exchange for them. I have frequently stood by whilst this operation has been going on and if I have been on the leeward side the smell which has come from the crowd round the shed, in spite of the beautiful odour of the fruit, has been horrible. A few days ago I took shelter from a passing shower under a tree where a number of pickers had stood with their baskets about an hour previously and even after that length of time the smell was so evil that I preferred to move through the heavy rain to another tree some way off. We hear a great deal about the filthiness of Poles and Russian Jews but I feel

quite sure that it would be impossible for any people to be filthier than are those who pick the fruit in Kent (Fig. 2). Outbreaks of typhus fever, although not common, have occurred amongst them in recent years, and probably if it were possible to secure the statistics from the different districts some very alarming figures might be shown, although the life in the fresh air must do much to minimise the risk of epidemic disease. In picking the fruit the fingers of these people come into most intimate contact with the berries, and in the case of raspberries, which are of a very "squashy" description, the fruit must form almost a solution of the dirt on the fingers of the pickers. No country people in the fruit districts, however poor, would touch fruit which has been handled by the pickers and most careful inquiries are always made as to who has picked any fruit offered for sale. Yet a very large proportion of the fruit gathered by these filthy people must pass to the houses not only of the average respectable middle-class person but to the tables of "the rich and the great."

Swanley is perhaps the centre of the soft fruit district and a more wretched place it would be difficult to find. It consists essentially of one long street separated by two little streets from a large manure siding. There is no main drainage, the cesspool system being in use. As this is combined with a high-pressure water-supply the sanitary condition of Swanley during the fruit season may well be imagined. The extra pressure of population proves too much for the cesspools and I have frequently seen the liquid contents flowing down the gutters of the main street. The overcrowding, however, is not so bad as it was, for within the last year or two several rows of cottages have been erected on the outskirts. To get over the cesspool difficulty many of the cottage owners have driven deep holes into the chalk, which is only a few feet down, with the consequence that the sewage drains away through the chalk and the cesspools do not require to be emptied. The prospect of sewage finding its way into the Kent Company's water-supply which is drawn from the chalk is, to say the least, disquieting. There are a large number of these pickers' "compounds" in the Swanley district and the photographs which are reproduced here have been taken near Swanley. The total number of corrugated iron shanties within two miles of Swanley station must amount to many hundreds and the fruit pickers in that neighbourhood are perhaps the filthiest in Kent; although I came across a large crowd near Orpington who would run them very close. The pickers at Hockenden, near St. Mary Cray, seemed of a slightly cleaner description, but there was not much to choose. In very few cases is the water laid on to the pickers' compounds and they have to fetch all they want in buckets, frequently from a distance, so that they have no temptation to be cleanly, even if they were so disposed. In the Wrotham district and near Tonbridge a large proportion of the picking is done by genuine country people and a very pretty appearance they present, but there is one farmer near Ightham who employs as wretched and filthy a set as can be seen anywhere. On the south-east side of Ightham also there are some very bad compounds.

It is interesting to trace the fruit from the fields on its way to the jam-pot. Not long ago I had the opportunity of going through a large London jam factory. As the fruit was delivered from railway wagons and the firm's own vans it was handed over to dirty old women to pick off the stalks and again went through a large amount of unsavoury handling. Then part of the fruit was made straight into jam by boiling it in steam jacketed pans with sugar. When the jam was sufficiently concentrated it was ladled into jars and allowed to cool in the usual way, whilst another portion was "pulped," that is to say, the fruit was partly boiled so as to sterilise it, and then packed away in large jars in the basement to be made into jam during the slack season. The soft fruit season is so short that some jam makers prefer to do this but the quality of the pulped jam cannot be nearly so good as that of the freshly made. Nevertheless, it enables a much larger quantity of jam to be made with the same plant and the factory goes on steadily until the marmalade season commences. The workers in this factory were certainly a little cleaner than the fruit pickers but were still of a very miserable, unwashed description. I feel sure that anyone who had seen the way in which fruit is handled would require a warranty from the jam maker that the fruit had been picked by cleanly people and made into jam by decent folk. As a contrast to this I may mention another visit to a jam factory in Cambridgeshire where the fruit was picked by the country folk and made into jam under the best conditions and I have no doubt that there are others equally as good.

I fear that it is very difficult to suggest a remedy for this very unsavoury state of affairs. It arises from the depopulation of the country districts and until through some alteration in our land system and other conditions the population is restored it seems to me that the farmers will be largely compelled to rely during the busy season of fruit-picking upon the wretched folk I have described. As I mentioned above, the overcrowding in the Swanley district has been remedied to some extent but in the Wrotham district matters seem to be going from bad to worse. As cottages become uninhabitable they are not replaced and a considerable number of cottages have

FIG. 2.

A group of pickers.

been used by the local landowners for conversion into villas by the addition of another two or three rooms, thus literally driving the peasantry out of the country. It would be difficult to animadvert too strongly upon the overcrowding which has been needlessly caused by the landlords round Ightham. Whilst this goes on it is hopeless to expect any improvement in the conditions under which fruit is picked. At the same time I must say that the farmers and landowners of Kent are usually absolutely callous about the matter and as they practically elect the district and county councils the sanitary authorities apparently do not trouble themselves about the present state of affairs.

HYGIENE AND TEMPERANCE FOR ELEMENTARY SCHOOLS.

THE important petition signed by 14,718 registered medical practitioners in the United Kingdom addressed to the central education authorities asking that teaching on cleanliness, pure air, food, and drink should be included in the curricula of the public elementary schools and encouraged in the secondary schools was presented to Lord Londonderry, President of the Board of Education, at the offices of the Board, Whitehall, London, by a deputation of the leading members of the medical profession on July 11th. The petitioners state that they are well aware that the laws of health may receive attention in the schools at the present time but that it is an optional subject. They believe that it should be compulsory and that the instruction should be given at a much earlier age than at present. The petitioners also urge the central education authorities to instruct the school children concerning the effects of alcohol on the body and the mind, and a strong point is also made of the necessity of insuring an adequate training of school teachers in regard to hygiene, temperance, and sanitation.

The deputation was introduced to Lord Londonderry by Dr. R. Farquharson, M.P., who is chairman of the Public Health Committee of the House of Commons. The first speaker called upon was Sir William Broadbent, who has taken an active part in the movement and has done a great deal of work as chairman of the committee of distribution of the petition, and who detailed the active efforts of the medical profession in furthering the development of early training in the principles of hygiene and temperance. He was followed by Dr. T. D. Griffiths, President of the British Medical Association, who referred to the action of the Association and read a resolution passed by the council of the Association in January last strongly supporting the present movement as a practical measure against national physical deterioration and describing the general interest of the Association in the education of the people in hygiene and temperance. Sir Thomas Barlow then made a short speech, in which he urged the central authorities in education to adopt the proposed development of elementary education in hygiene and temperance, and he then proceeded to explain what the far-reaching effects of such teaching would be on the health and social prosperity of the nation. The next speaker was Dr. C. F. Hutchinson, M.P., who mentioned that it gave him great pleasure to support the deputation as he was one of the members of the Public Health Committee of the House of Commons. He promised the medical profession that the movement would be helped in the House of Commons if medical men continued their efforts. Professor G. Sims Woodhead made a good point in the short speech which he delivered by emphasising the importance of the subject being taken up and directed in a thoroughly organised fashion by the central education authorities. Sir Lauder Brunton discussed the matter from the wider standpoint of its international character and commented on the importance of considering the lessons to be drawn from the International Congress of School Hygiene held at Nuremberg. Dr. M. A. D. Scharlieb spoke of the need of elementary teaching of hygiene, particularly in respect of the diet and feeding of infants and children, and remarked on the influence that such teaching would have on national hygiene and the spread of temperance. Sir Victor Horsley was the last speaker on behalf of the deputation and he drew particular attention to the desire of the medical profession that the Government should institute elementary education in principles of health and temperance. He declared that the necessity had been proved for such teaching being made universal and succeeded in showing very plainly how important it was to train the school teachers in the principles of hygiene, temperance, and sanitation.

Lord Londonderry, in his reply, explained what the Board of Education had done and was intending to do towards carrying out the wishes of the deputation. He was as anxious as Sir Victor Horsley was to have teachers giving instruction in the subject of hygiene but he was bound to say that at the present time those teachers did not exist. It was impossible to believe that anyone would wish the children to be instructed in such important subjects by those who were not properly trained. The Board of Education was, however, devoting itself to the training of such teachers and he trusted that in the course of time its efforts in that direction would bring about the desired result. The petition referred to the serious physical and moral conditions of degeneracy and disease resulting from the neglect and infraction of the elementary laws of hygiene, but he called their attention to the fact that a competent committee had for some time past been investigating the alleged effects of physical deterioration. Until he was in possession of the opinions of that committee he felt that his hands were tied. If when the committee reported they learnt that the evil suspected to exist was of a distinctly local character then he hoped that the action which the Board of Education had already taken in regard to instruction in the laws of health would prove to be sufficient to place the question everywhere on a proper basis in a short time. Lord Londonderry concluded by quoting from the regulations and code issued by the Board of Education and asked the deputation to believe that the educational authorities were not ignoring the important questions raised by the petition. He assured them that they fully realised their responsibility for contributing towards the production of a race that was strong in health and intellectually competent.

MEDICINE AND THE LAW.

Alleged Negligence in the Use of Cocaine.

A VERDICT for the defendant has at last concluded an action brought against Mr. Ebenezer Apperley, a dentist practising at Stroud and in London, which arose out of an operation performed in 1902. The plaintiff, a carpenter, went to Mr. Apperley's surgery on Christmas Eve suffering from toothache, and the defendant's son, also a dentist, inserted a temporary stopping of cotton prepared with oil of cloves, carbolic acid, carbolised resin, and cocaine lanoline. For this, according to his evidence, he used a 10 per cent. solution of cocaine and he stated that he was sure that he did not put more than one-twenty-fifth of a grain of cocaine into the tooth. The immediate effect upon the plaintiff, according to his account of the matter, was to make him dizzy so that he reeled like a drunken man. On the following day when he was eating some pudding the temporary stopping came out and he swallowed it. This, according to his story, gave him "another turn" and he became so ill that a medical man was called in. The plaintiff appears to have believed that the cotton-wool was impregnated with cocaine only and in the course of the trial medical witnesses expressed the opinion that his symptoms were consistent with cocaine poisoning. Medical witnesses for the defendant, besides the gentleman who put in the temporary stopping, negatived the alleged negligence, expressing the opinion that the temporary stopping had, according to the plaintiff's own evidence, been properly inserted. Attention was also called to symptoms among those described which were inconsistent with cocaine poisoning and to the absence of others which might have been expected. The medical witnesses for the defendant considered that the sufferings of the plaintiff spoken of by himself and others and ascribed to Mr. Apperley's alleged negligence were due to epilepsy or hysteria, and this view was no doubt that of the jury. The defendant is to be congratulated upon the result of the protracted litigation of which he has been the victim. An action of such a description inflicts serious hardship upon a professional man who, even if he is ultimately successful in defending his reputation, can only do so at considerable expense and after enduring much anxiety. The defendant,

in short, is at the mercy of the plaintiff for as long as the latter chooses to go on the former has no alternative but to resist the claim. To yield would be to admit a charge of professional incapacity and the contest is often with one who has everything to gain and little or nothing to lose by continuing it.

Nurses and Children.

The medical evidence given in a recent prosecution at the Marylebone police-court should be a warning to parents who intrust their children to the care of nurses that careful supervision is necessary in all cases, even when the usual testimony to good character has been obtained and the servant engaged appears to fulfil her duties satisfactorily. Ada Sprague, a girl, aged 19 years, summoned by her master for assaulting his son, aged three years, claimed to have had a gold watch given to her by her former employer and a ring by the prosecutor, and mentioned these somewhat unusual gifts to prove that she had not been altogether a bad nurse. Dr. J. Maughan, however, the divisional surgeon of police who had examined the child, deposed to bruises on his cheek, forehead, eyelid, and temple, to six bruises in the left groin, two in the region of the loin, and many others on the arms and other parts of the body. He had counted over 60 in all, independently of a mass of marks between the shoulders too numerous to be distinguishable, and he was able to say that though no individual injury was serious the effect of the thrashing which the child had received had been to produce a shock which prevented him from attending the court. The servant admitted that she had lost her temper with the little boy and alleged that he was dirty and stubborn. Mr. Plowden, the magistrate, referring to her statements mentioned above as to the esteem in which she has been held in her situations as nurse, said that the only surprise he felt was that she should be intrusted with the care of children at all and fined her 40*s.* with the alternative of a month's imprisonment. The father of the child is to be congratulated upon having secured this young woman's conviction and upon having laid before the bench clear and independent evidence in support of his charge. Not a few children suffer seriously in mind and body from the heedless unkindness or deliberate cruelty of their nurses. Those who observe the conduct of the women in charge of the children of the wealthier classes in such places of public resort as Hyde Park and Kensington Gardens cannot fail to notice at times instances of harsh treatment, such as to cause wonder whether the parents are aware of what goes on in their absence. In many cases they are not so aware and information given by the onlooker would be welcomed with gratitude; in others they are not only ignorant but indifferent; and in some the treatment meted out to the unfortunate little ones is actually connived at, or approved of, by persons who would resent as impertinent any report made to them or any remonstrance with their servant. The excuse made by the nurse that the child was "dirty" recalls a similar one put forward by Mrs. Penruddocke at the Old Bailey before her conviction for cruelty to her own child. It is not only temporary pain but actual injury to health that is inflicted upon children of tender years by chastisement when gentle and patient training and possibly medical advice are required.

Death Certification by an Unqualified Person.

At Winchester assizes a man charged as Charles Henry Hustwick alias Cormac has been convicted and sentenced to 18 months' hard labour for feloniously giving on the prescribed form issued to medical men a certificate of the death of a child. It was proved that the prisoner's name was not, and never had been, on the Medical Register, in spite of which he impudently asserted his innocence of the charge and boasted of having practised as a medical man for many years, having apparently at one time acted as an unqualified assistant to medical men. After the jury had given a verdict against him a previous conviction was proved for an attempt to procure abortion in Devonshire. It is to be hoped that the police will keep a watchful eye upon this person upon his release.

HEALTH OF ST. IVES.—The medical officer of health of St. Ives, Cornwall, in his annual report for 1903, states that the population of the town is 6697 and that 175 births were registered, giving a birth-rate of 26·13 per 1000; 95 deaths were registered, giving a death-rate of 14·18 per 1000.

Looking Back.

FROM

THE LANCET, *SATURDAY*, JULY 15, 1826.

HOSPITAL REPORTS.

ST. BARTHOLOMEW'S HOSPITAL.[1]

Dr. Latham, in reference to the above interesting case of hydrophobia, expressed in the presence of Mr. Abernethy, Mr. Vincent, and Mr. Stanley, and a numerous assemblage of pupils, an anxious wish for a post-mortem examination; observing at the same time his doubts of its practicability, as it was a notorious fact that the beadles were not only grossly deficient in their duty, but that it was against their interest to allow any examination whatever. Mr. Vincent mildly inquired of a beadle (a fellow of the name of Gates,) if there were any precise time for the corpses of patients to remain in the ward, where their influence must prove injurious to the unfortunate and distressed beings condemned to such a charnel-house; and if such regulation did exist, did it extend the time to five or six hours after death?

The beadle answered in a manner peculiarly his own, "*that in many instances they remain the whole of the day!* and as to any regulation he knew nothing about it."

Mr. Vincent expressed his disapprobation, and demanded a second time, to know if there was any such rule, remarking that it was disgraceful conduct, and very unfeeling to the poor friendless patients.

Mr. Stanley condescended to reason with the fellow, and thinking the argumentum ad hominem most fitted to his capacity, asked how he should like to be condemned to lie on a bed of suffering contiguous to a putrefying dead body for such a space of time? To this question the man of feeling (viz. the beadle) very properly and sensibly said that he would not like it at all. Dr. Latham desired to know, (as no rule had been laid down by the Governors of the hospital, and as it seemed to be left entirely to the humane discretion of the beadles,) the usual time they, in the exercise of that discretion, allowed to elapse before it pleased them to remove the putrefying mass, and whether he, the said Gates, considered himself fulfilling his duty to his employers, by allowing it to remain five or six hours, nay even the whole day, in the ward, during such African or dog-day weather as we now experience? The omnipotent beadle, being learned in the law, was aware that if he spoke the truth he would stand self-convicted, determined on being insolent, thereby avoiding a disagreeable answer to a question (in his opinion) *most uncalled for and unnecessary*. Screwing therefore his courage to the sticking place, he cooly informed the Doctor "that as the conversation commenced with Mr. Vincent, he did not *think fit* to answer *him*."

Dr. Latham turning to the pupils said, "You see Gentlemen, how these men domineer over the medical men; they do so to me every day. ..... It is a notorious fact, and the committee themselves know it, that every individual beadle in this hospital is an undertaker, and I ask, are undertakers fit men to fill the situation? Instead of doing their duty to the hospital, it is their interest to permit the friends of the deceased to take away the bodies. It would be both expense and trouble to the beadles to remove them to the dead-house; and by waiting for the relatives, and keeping the corpse in the ward, they stand a fair chance of becoming UNDERTAKER at the funeral. The committee shall be informed of this."

Mr. Stanley then expressed his wish to accompany Dr. Latham and Mr. Vincent to the committee; he said he had another cause of complaint against Gates to make known to the committee.

The fellow with an air of defiance and insolence, which he preserved throughout, told them he should be ready to answer them, and walked off.

Dr. L. addressing the pupils, said, "Gentlemen, as this is a most interesting case, and you will be most anxious to be present at the examination, I am sorry to say that it is out of my power to promise you any thing on that point, but I think I can name one way: '*Bribe* the beadle, Gentlemen, *bribe* the beadle.'"

[1] Excerpts only have been transcribed.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8567 births and 3948 deaths were registered during the week ending July 9th. The annual rate of mortality in these towns, which had been 13·8, 13·2, and 13·5 per 1000 in the three preceding weeks, was 13·5 per 1000 again last week. In London the death-rate was 12·9 per 1000, while it averaged 13·7 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 2·6 in Handsworth (Staffs.), 3·2 in Hornsey, 6·3 in King's Norton, 6·9 in Tottenham, 7·1 in Leyton, 7·7 in Cardiff, 8·4 in Walthamstow, and 8·5 in Coventry; while the highest rates were 17·7 in Gateshead, 17·9 in Manchester, 18·0 in South Shields, 18·2 in Liverpool, 19·1 in Oldham, 19·9 in Stockport, 21·1 in Burton-on-Trent, and 21·4 in Huddersfield. The 3948 deaths in these towns last week included 500 which were referred to the principal infectious diseases, against 487, 444, and 455 in the three preceding weeks; of these 500 deaths, 182 resulted from measles, 115 from diarrhœa, 109 from whooping-cough, 40 from diphtheria, 32 from scarlet fever, 16 from "fever" (principally enteric), and six from small-pox. No death from any of these diseases was registered last week in Hornsey, Bournemouth, Devonport, Handsworth (Staffs.), Kings Norton, Wigan, Stockton-on-Tees, West Hartlepool, or Merthyr Tydfil; among the other towns the highest death-rates from the principal infectious diseases were recorded in Plymouth, Stockport, Birkenhead, Liverpool, St. Helens, Salford, Burnley, Blackburn, and Huddersfield. The greatest proportional mortality from measles occurred in Walthamstow, Plymouth, Birkenhead, Liverpool, St. Helens, Salford, Oldham, Burnley, and Huddersfield,; from scarlet fever in Aston Manor and York; from diphtheria in Grimsby; from whooping-cough in Great Yarmouth, Burton-on-Trent, Birkenhead, Warrington, and Blackburn; and from diarrhœa in Southampton and Gateshead. The mortality from "fever" showed no marked excess in any of the large towns. Of the six fatal cases of small-pox registered in these towns last week five belonged to Stockport and one to Gateshead. The number of small-pox patients under treatment in the Metropolitan Asylums Hospitals, which had been 80, 83, and 74 at the end of the three preceding weeks, had further declined to 71 at the end of last week; 10 new cases were admitted during the week, against seven, 16, and 10 in the three preceding weeks. The number of scarlet fever cases in these hospitals and in the London Fever Hospital on Saturday last, July 9th, was 1685, against 1630, 1629, and 1631 on the three preceding Saturdays; 269 new cases were admitted during the week, against 206, 199, and 254 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory system, which had been 142, 141, and 146 in the three preceding weeks, declined again last week to 135, but were eight above the number in the corresponding period of last year. The causes of 41, or 1·0 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Nottingham, Salford, Bradford, Newcastle-on-Tyne, and in 51 other smaller towns; while the largest proportions of uncertified deaths were registered in Northampton, Norwich, Birmingham, Liverpool, Bolton, Sheffield, and Sunderland.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 17·0, 15·9, and 16·3 per 1000 in the three preceding weeks, declined again to 15·8 per 1000 during the week ending July 9th, and was 2·3 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 12·3 in Perth and 13·0 in Aberdeen and in Leith, to 16·5 in Glasgow and 17·5 in Dundee. The 524 deaths in these towns included 24 which were referred to whooping-cough, 20 to diarrhœa, seven to "fever," six to measles, three to small-pox, two to scarlet fever, and two to diphtheria. In all, 64 deaths resulted from these principal infectious diseases last week, against 66, 74, and 75 in the three preceding weeks. These 64 deaths were equal to an annual rate of 1·9 per 1000, which was 0·2 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 21, 27, and 31 in the three preceding weeks, declined again last week to 24, of which 13 occurred in Glasgow, six in Edinburgh, and four in Aberdeen. The deaths from diarrhœa, which had been 20, 22, and 18 in the three preceding weeks, rose again to 20 last week, and included ten in Glasgow, three in Dundee, two in Edinburgh, and two in Aberdeen. The fatal cases of "fever," which had been two, four, and three in the three preceding weeks, increased again last week to seven, of which four (including one from typhus) were registered in Glasgow, and two in Edinburgh. The deaths from measles, which had been 12 and 14 in the two preceding weeks, declined again to six last week, and included two in Glasgow and two in Leith. The fatal cases of small-pox, which had been three, one, and two in the three preceding weeks, rose again last week to three, of which two were recorded in Glasgow and one in Edinburgh. The deaths referred to diseases of the respiratory organs in these towns, which had been 93, 64, and 80 in the three preceding weeks, further rose last week to 88 but were slightly below the number in the corresponding period of last year. The causes of 18, or more than 3 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 21·7, 19·5, and 16·5 per 1000 in the three preceding weeks, rose again to 17·9 per 1000 during the week ending July 9th. During the past four weeks the death-rate has averaged 18·9 per 1000, the rates during the same period being 12·9 in London and 16·1 in Edinburgh. The 130 deaths of persons belonging to Dublin registered during the week under notice showed an excess of 10 over the number in the preceding week and included 10 which were referred to the principal infectious diseases, against six, three, and seven in the three preceding weeks; of these, five resulted from diarrhœa, three from whooping-cough, and two from measles, but not any from small-pox, from scarlet fever, from diphtheria, or from "fever." These ten deaths were equal to an annual rate of 1·4 per 1000, the death-rates last week from the principal infectious diseases being 1·5 in London and 2·0 in Edinburgh. The deaths from measles corresponded with the number in the preceding week, while those from whooping-cough and from diarrhœa showed an excess. The 130 deaths in Dublin last week included 22 among children under one year of age and 33 among persons aged 60 years and upwards; the deaths both among infants and among elderly persons slightly exceeded the respective numbers in the preceding week. One death from violence and three inquest cases were registered; and 45, or more than a third, of the deaths occurred in public institutions. The causes of ten, or nearly 8 per cent., of the deaths in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeon: O. W. Andrews to the *Magnificent*. Surgeons: F. Cock to the *Magnificent*; and A. A. Forrester to the *Pembroke* to be lent to Chatham Hospital.

ROYAL ARMY MEDICAL CORPS.

Major J. W. F. Long retires on retired pay (dated July 9th, 1904). Captain E. C. Hayes and Captain T. H. M. Clarke have been appointed to the Home District for duty in London.

INDIAN MEDICAL SERVICE.

The King has approved of the following promotions in, and admissions to, the Indian Medical Service:—Bengal: to be Colonel: Lieutenant-Colonel David Wilkie (dated April 2nd, 1904). Majors to be Lieutenant-Colonels: John Henry Tull Walsh, Harold Hendley, Hormasjie Eduljie Banatvala, and William George Patrick Alpin (dated April 1st, 1904). To be Lieutenants: Charles Hildred Brodribb (dated August 31st, 1903). Punjab: Hugh Basil Drake, Ernest Charles Hodgson, William Sim McGillivray, William Gillitt,

William Frederick Brayne, Charles Harrison Barber, Hugh Watts, and William Tarr. Bombay: Merwan Sorab Irani, Ivor Davenport Jones, Walter Taylor Finlayson, Seymour Whitworth Jones, William Thomas McCowen, Hugh Ellis Stanger-Leathes, and John Anderson. Madras: Edmund Arthur Roberts, Geoffrey Gratrix Hirst, Michael Joseph Quirke, John Morgan Holmes, and Maurice Forbes White (dated Jan. 30th, 1904).

The King has also approved of the retirement from the service of the undermentioned officer: Lieutenant-Colonel John Campbell Fullerton (dated June 25th, 1904).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st Glamorganshire: Francis Griffith Thomas to be Surgeon-Lieutenant (dated July 9th, 1904). 8th Lancashire: Charles Edwin Maximilian Lowe to be Surgeon-Lieutenant (dated July 9th, 1904).

Rifle: 3rd Volunteer Battalion the Devonshire Regiment: Surgeon-Captain W. Langran resigns his commission (dated July 9th, 1904). 2nd (Berwickshire) Volunteer Battalion the King's Own Scottish Borderers: Surgeon-Captain S. Macvie to be Surgeon-Major (dated July 9th, 1904). 2nd Volunteer Battalion the Durham Light Infantry: Brigade Surgeon-Lieutenant-Colonel T. A. McCullagh resigns his commission and is granted the honorary rank of Surgeon-Colonel, with permission to wear the prescribed uniform, vacating at the same time the appointment of Senior Medical Officer to the Durham Light Infantry Volunteer Infantry Brigade (dated July 9th, 1904).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

The Woolwich Companies: Lieutenant J. Hardie to be Captain (dated July 9th, 1904). Welsh Bearer Company: Captain A. W. Sheen is appointed to command (dated July 9th, 1904).

THE SOUTH WALES BORDER VOLUNTEER INFANTRY BRIGADE.

The brigade camp will be held during July and August at Salisbury Plain and will consist of the following regiments—viz., the 1st, 2nd, 3rd, 4th, and 5th V.B. South Wales Borderers and the South Wales Border Volunteer Infantry Brigade Bearer Company. Surgeon-Captain R. J. Paton has been promoted to Surgeon-Major and Mr. D. J. Thomas has been appointed Surgeon-Lieutenant. Brigade Surgeon-Lieutenant-Colonel Philip E. Hill, V.D., is the senior medical officer of the brigade.

THE WAR IN THE FAR EAST.

It is very difficult to follow the progress of the war or to form anything like a correct estimate of the strength of the forces that have taken part in the latest military operations or of the losses sustained on either side; nor is it easy to locate at the present time their relative positions to one another in the field with a view to obtain some idea of their future strategical aims and movements. No decisive battle has yet been fought, but everything points to one being imminent, possibly at Tashi-chao or Newchwang. It seems certain, however, that the Japanese have taken and occupied Kaiping after some hard and protracted fighting, that the siege of Port Arthur is being actively carried on, and that there has been a good deal of almost continuous fighting in its vicinity, the fleet coöperating with the land forces. We have but little to do, however, with this aspect of the war, and from a purely medical point of view there has been next to nothing to record during the past week. The Japanese troops owing to their occupying for the most part mountain passes, rising ground, and the slopes of hills have obviously a better sanitary position in the rainy season than the Russians located on the rain-sodden and more or less water-logged plains, and it would be both interesting and instructive to have some statistical evidence of even an approximate kind about the relative sickness of the two armies. As regards the number of killed and wounded in the various recent engagements there is a wide disparity between the official estimates that have been published in the Russian and Japanese despatches. With regard to the Russian army we learn through Reuter's Agency that the *Official Messenger* has published the following telegram from Tashi-chao regarding the health of the Russian troops in the field: "Up to June 26th the number of officers and men in hospital amounted to 7·136 per cent. and 3·943 per cent. respectively of the total forces. If the wounded officers and men already removed to the rear are included the percentage is 10·24 and 6·51. After the beginning of the rainy season on July 9th the percentage of officers and men in the hospitals rose to 8·384 and 4·646 respectively, the proportion of patients suffering from infectious diseases increasing from 2·19 per cent. to 8·52 per cent., including a percentage of dysentery cases of 1·99." With a single line of railway and the amount of war material and food, as well as the number of reinforcements that have to be conveyed along it, we do not see how the Russians can carry out the system now adopted in warfare of transporting the sick and wounded from front to rear as soon as possible, and so far as Port Arthur is concerned the difficulty of providing them with medical relief and hospital accommodation must prove well-nigh insuperable. In this connexion we may mention the report of the senior medical officer of the *Mongolia* hospital ship at Port Arthur, who says that it is difficult to count on the complete recovery of the sick and wounded in Port Arthur unless they can be removed. The continuous tension is hard on them; every bombardment makes their condition worse, and the *Kotlin* suggests that the *Mongolia* should be allowed to take its invalids to Shanghai to tranship them for Russia.

The Liaoyang correspondent of the *Torgovo Promyshlennaya Gazeta* sends the following description of the deplorable state of Inkau (the port of Newchwang). After describing the danger from the Chungtchuses, he says: "Not less dangerous for the town are the epidemic diseases which begin every year in the town and spread along the populous routes of Manchuria right through Transbaikalia to Irkutsk and Krasnoyarsk along the line of the Siberian railway. It may be said that Inkau has served as the home of plague and cholera that have raged in the Far East for a considerable period yearly, and probably the premier position as propagator of these diseases is reserved for that town for a long time to come. The sanitary condition of the town is fearful. Thousands of Chinese coolies live there in a state of extreme poverty and make use of food that has not had the slightest sanitary inspection. They inhabit houses that do not answer to the most rudimentary idea of hygiene. The deep river Linoho which runs past the town is choked with refuse of all kinds which with the ebb and flow of the tide keeps moving in front of it. The river water is good neither for drinking nor washing by reason of its filth. Nevertheless, the Chinese who live on the junks make use of it. Besides this there is the large Chinese cemetery at a short distance from the town where the victims of previous epidemics are buried at such a little depth from the surface that wind blowing from that direction carries the effluvia of the corpses through the town. The principal European settlers in Inkau are English, Americans, and Germans and the Russians are the least in number."

THE JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

The July number of this publication, edited by Colonel David Bruce, F.R.S., R.A.M.C., contains many excellent papers and more than maintains its scientific and literary interest. Among the original communications the articles on Enteric Fever by Captain E. Blake Knox, R.A.M.C., and by Captain W. S. Harrison, R.A.M.C., are well worth reading. The former deals with the spread of enteric fever by urine and its prophylaxis and the latter with our present position with regard to enteric fever in India. Colonel Bruce contributes a paper on Sleeping Sickness in Uganda which is admirably illustrated and, as might have been expected from its source, is of high scientific value. The author deals with the subject in an ably reasoned and exhaustive way. The journal contains other papers of scientific, clinical, and general interest such as one on the Infectivity of Scarlet Fever by Lieutenant-Colonel R. H. Firth, R.A.M.C., and articles on the Medical Services of the Russian Army and on medical and surgical cases. But we must not omit to mention that under the heading of "Echoes from the Past" there appears Part I. of some charming notes written in fresh and simple style of Queen Victoria's visit to Fort Pitt and Chatham contributed by George Russell Dartnell, deputy inspector-general of hospitals, 1855–56.

THE NAVAL MEDICAL SUPPLEMENTAL FUND.

At the quarterly meeting of the directors of the Naval Medical Supplemental Fund held on July 12th with Sir James N. Dick, K.C.B., in the chair, the sum of £60 was distributed among the several applicants.

Correspondence.

"Audi alteram partem."

THE THORNE DEFENCE FUND.

To the Editors of THE LANCET.

SIRS,—May I express through the medium of THE LANCET my most grateful thanks for the chivalrous and practical sympathy which has been shown to me by colleagues and friends, known and unknown, in relieving me of the costs and damages awarded against me in the recent action in which I was the defendant? The sympathy has been most grateful to me and has very much helped me to bear the strain and anxiety inevitable in a case where one's professional character has been assailed. I should also like to express my indebtedness to the Medical Defence Union and to Mr. Hempson, the solicitor to the Union, for the care with which this case was conducted.

I am, Sirs, yours faithfully,

Harley-street, W., July 12th, 1904. MAY THORNE.

THE PRESENT CONDITIONS OF INFANT LIFE AND THEIR EFFECTS IN REGARD TO THE INFANT, CHILD, AND ADULT.

To the Editors of THE LANCET.

SIRS,—It is a mere truism to say that we are entirely dependent on the infants of the present for the adult population of the future. Yet while we do much to deal with disease in the child and adult we are almost totally neglecting to care for the human being at a period of life when exceptional care is most urgently needed. About one-fourth of the total deaths at all ages are contributed by infants under one year of age. This mortality is extremely excessive. It appears even more so when we remember that all the infants in the land are included in the general statistics, so that those cared for in the homes of the fairly well-to-do and of the wealthy tend to disguise the real mortality in the homes of the poor. Dealing with this aspect of the question Dr. E. W. Hope, medical officer of health of Liverpool, wrote in his report for the year 1901 :—

> In the course of an inquiry into infantile mortality 1082 families in which the death of an infant had occurred were taken consecutively and certain particulars concerning them ascertained. The total number of children born in these families had been 4574, but out of that number 2229 had died—practically all in infancy—representing 487 deaths out of every 1000 born. The most remarkable series of excessive mortality occurred in 12 families, in which the large total of 117 infants had been born and no less than 98 had perished in infancy. These extreme examples occurred in families in which, so far as municipal sanitation is concerned, there was very little to choose between them and many of the families who rear all, or nearly all, their children.

The mortality is bad enough, but it must be doubted whether this is the worst result. What of those who escape death? Do the survivors emerge uninjured by the conditions responsible for the death of so many of their fellows? Mr. W. Hall of Leeds has supplied one instance of the answer to this question. Out of 2335 board school children examined by him he found that more than half were rickety. But it is idle to select instances when the results are devastating the country. It is scarcely credible that the present situation can continue when the medical profession and the public understand the issues involved. The study of the infant and the conditions of infant life have been almost totally neglected and disease and deformity of every kind are the legacy of our neglect. Year by year the demand for hospital accommodation increases and we persistently shut our eyes to the real and preventable cause of this demand. No matter whether we turn to hospitals for diseases of the nervous system or to hospitals for diseases of the chest we see the results of infantile malnutrition. In the wards and in the out-patient departments of practically every general and special hospital we see the same thing. The asylums, prisons, and workhouses are largely dependent for their inmates upon the mental and physical deformities arising from defective structure.

The predominating primary cause of these conditions is the improper feeding of the infant. Maternal nursing is the ideal method and everything should be done to encourage this under proper conditions. But this method is impracticable in a very large number of cases and consequently substitute feeding becomes a necessity. The great reason for the present conditions is that the physiological factors involved have been almost completely neglected. To obtain any real improvement it is essential that the traditional and domestic methods of artificial feeding should be entirely abandoned. To discuss these methods in detail would be far beyond my present purpose. Their failure is writ large in the present state of affairs. Unfortunately the problem has been rendered more complicated by the well-meant efforts of some of our municipalities to deal with the situation. Stock mixtures put up in bottles and then sterilised may do a good deal to diminish the mortality in the first year. But such a benefit may be dearly purchased. The lessening of the mortality by such means must be followed by disease and deformity in the later years resulting from patent defects in the food mixtures supplied and the destruction of important properties by the process of sterilisation.

Structural development in the young infant under normal conditions proceeds at a rate quite peculiar to this period of life. The structure of nerve, brain, bone, and muscle depends entirely on the character of the food supplied during this period. What is done then cannot be undone. We cannot jerry-build without suffering from the results.

In the early part of 1903 the Infants' Hospital was established in Denning-road, Hampstead. The result of the work there has only been to convince me more and more of the vital importance to the country of radically dealing with the present situation. It is proposed to move the hospital to a central site as soon as possible. Without aiming at a "great" hospital it is considered necessary that it shall be large enough to be organised on a proper basis and fitted with every arrangement for the saving of infant life and the furtherance of scientific knowledge pertaining to this end. For we need at least one institution where the study of the many important problems involved can be systematically prosecuted. This year the Infants' Health Society has been established in the attempt to grapple with that great part of the problem not primarily belonging to the hospital—the prevention of disease and the securing for every infant food adequate in quantity and *quality* for his physiological needs. I firmly believe that the present conditions of infant life most seriously threaten the welfare of the country. And I am equally convinced that the remedy is comparatively easy if the importance of the issues is realised and due attention is given to the technical matters necessarily involved in providing a substitute for that most delicately constructed food—human milk.

I am, Sirs, yours faithfully,

Harley-street, W., July 9th, 1904. RALPH VINCENT.

ELECTRIC-LIGHT BATHS FOR HOSPITALS.

To the Editors of THE LANCET.

SIRS,—I have been for some time contemplating the idea of making an urgent appeal to the authorities to introduce electric-light baths into our hospitals for the use of both out-patients and in-patients. We are in this matter far behind our German *confrères*, as a visit last year to many hospitals in several German towns convinced me. At these institutions for the treatment of poor people an electric-light bath is a very usual part of the therapeutic outfit.

Personal experience of this treatment in cases of rheumatism, myalgias, &c., induces me to assert that recovery or improvement would take place much sooner under its employment than under the mere drug treatment of the present day. Moreover, the electric water bath is already in vogue at some of our hospitals; why should not the equally potent light bath be introduced? Surely in these days, when the so-called physical remedies are so largely employed, our hospital patients should have the benefit of this particular mode of treatment and one which our private patients and the public generally are already using to such a large extent.

I would also strongly advocate a trial, at all events, of the light baths in our fever hospitals for all cases when the rash is "suppressed"; when we think of the power that this treatment possesses of filling the whole superficial area of the skin with blood surely it could not fail quickly "to bring out the rash"; in fact, under this treatment deaths

from "suppressed scarlet fever," "suppressed small-pox," &c., should be things of the past. In the latter class of case, of course, the bath constructed for the reclining position would be the one chosen; the patient is as easily lifted on to this as on to a low couch, superficial suffusion would speedily ensue together with gentle perspiration, and the object in view would be rapidly attained.

Naturally, those of us who give this treatment can only take ordinary cases, therefore as regards results in fever cases I can but speak theoretically. The whole subject seems to me an important one and will, I trust, receive the attention of the profession generally.

I am, Sirs, yours faithfully,

J. STENSON HOOKER, M.D. Durh.

Gloucester-place, W., July 7th, 1904.

ACCIDENTAL REVACCINATION.

To the Editors of THE LANCET.

SIRS,—In reference to Mr. W. H. Bowen's case as reported in THE LANCET of July 2nd, p. 20, a patient sent a message for me stating that he was suffering from blood poisoning. My assistant saw him and prescribed, but as he became worse I called to see him and found a large vesicle on the under surface of the upper lip. He told me that some days earlier on arriving home from work he found that the public vaccinator had called and had put four spots on his child's arm. Being angry at the vaccination he sucked the spots. The child's arm "took" in spite of the heroic treatment, and the man was properly revaccinated.

I am, Sirs, yours faithfully,

Upper Pontnewydd, July 9th, 1904. ALFRED W. HAYLES.

MARGARINE FOR BUTTER.

To the Editors of THE LANCET.

SIRS,—It appears from your annotation in THE LANCET of June 25th that it is only recently that the fraudulent substitution of margarine for butter in "bread-and-butter" has been detected. On reference to the books of the late Camberwell vestry I find that there was a conviction for this offence first obtained by one of its sanitary inspectors in August, 1892, with others at intervals up to the present date; in each case fines varying from £2 to £1 were inflicted by the magistrate.—I am, Sirs, yours faithfully,

FRANCIS STEVENS,
Medical Officer of Health to the Borough of Camberwell.

July 6th, 1904.

SUPPRESSION OF URINE FOR NINE DAYS; OPERATION; RECOVERY.

To the Editors of THE LANCET.

SIRS,—The following case will be of general interest and should be placed on record. At 3 A.M. on March 21st last I was asked to see a patient, a stout woman, married, aged 48 years, who was suffering from acute pain in the abdomen. She had been uneasy on March 20th all the day but the excruciating pain, the most severe she had ever had, did not commence until after she had gone to bed and it then occurred in paroxysms. There was no abdominal swelling. During the previous five years she had had five attacks of similar, but less severe, pain and had passed in all five small calculi by the urethra. Three of these attacks of pain had taken place during the last six weeks. The only other illness she has ever had was a chill, accompanied by pain in her left groin, five years ago, which necessitated her remaining in bed for three weeks. With regard to her present condition, the pain in the abdomen being intense I gave her a subcutaneous injection of morphia at once and prescribed five grains of calomel to relieve her constipation.

As I was washing my hands previous to leaving I was informed, quite casually, that no urine had been passed since the previous Thursday, March 17th, at which I smiled from incredulity and said that probably some had passed when her bowels had acted, without her knowledge. But it instantly flashed across my mind, has she been suffering from acute retroversion of the uterus, with retention of urine, during the last six weeks which accounted for her three attacks of pain and not from ureteral calculus? I therefore renewed my examination, and, finding all normal in the pelvis, passed a catheter without drawing off one drop of urine. I visited her again on March 21st at 8.30 A.M., found her free from pain, and was shown the action of the bowels, resulting from the dose of calomel, which was entirely free from urine. I thereupon recommended her removal to the hospital for the purpose of investigation and possibly urgent operation.

I need not occupy your space with all the arguments and conjectures that arose on account of her anuria during the succeeding days, involving the questions of retention somewhere internally or suppression with the possibility of the supervention of uræmia. Physical examination from day to day revealed nothing but a slight rise of temperature. As she appeared in excellent health she was allowed ordinary diet, but with a restriction of fluid (she was satisfied with three ounces a day) on the theory that her urine must be accumulating internally and would have to be dealt with as soon as any indication arose. She was kept in bed and she had hot baths night and morning, which she could bear at 114° F., in the hope that they would facilitate the passage of a ureteral calculus; if, on the other hand, there was suppression of urine I hoped to afford relief by thus acting on the skin and on the bowels by salines. As she had previously passed successfully through similar, but slighter, attacks of pain, though without any interference with the urine, it was clear that we could only await the issue of events. Suffice it to say, that she was day by day carefully examined and critically watched and beyond the slight rise in temperature already referred to (morning 99°, evening occasionally 101°) there was no symptom of discomfort or ill-health of any sort or kind, not even a headache.

Now from Monday, March 21st, to Saturday, March 26th, not one drop of urine was passed, with or without catheter, although under the closest observation, and we have testimony which can be trusted, as I know the patient and her husband, that none was passed from 3.30 P.M. on March 17th until the close of the operation at 6.30 P.M. on March 26th, a period of 219 hours. On March 26th, when her evening temperature was taken at 5 P.M. it was noticed that she looked hot and flushed and the thermometer recorded 108°. I immediately received a telephone message of the fact and directed that both my colleagues, Dr. H. Simpson and Mr. W. A. E. Waller, should be summoned, whose advice and assistance I gratefully acknowledge, and at 5.30 P.M. she was placed under an anæsthetic. There being no indication as to the course to be pursued, after another examination while under the anæsthetic and the use of the catheter without result, I resolved to open the abdomen and investigate inside.

I made a four-inch incision through at least one and a half inches of subcutaneous fat in the abdominal wall, between the umbilicus and the pubes. I found the bladder empty; the ureters were normal in size; there was no distension of the pelvis of either kidney; both kidneys were slightly larger than normal as far as one could tell with the hand, and the right, apparently, was a little larger than the left. I then closed the abdominal wound; turned her well over on her left side; made an incision in the right lumbar region; and failing to feel a stone in the pelvis of the kidney incised the capsule over the convex border of the right kidney and cut through the structure of the kidney towards its pelvis. As, however, the hæmorrhage was rather free I resorted to both forefingers and very gently split the remainder until I reached the pelvis and thus saved much hæmorrhage. In the pelvis of the kidney I came upon about a drachm of rather strong-smelling concentrated urine and a small loose calculus which, in the great depth of the wound, I lost and never recovered. Deeply imbedded in the ureter at its junction with the pelvis of the kidney was an apparently branched stone, which, do what I would short of splitting the ureter (with every kind of instrument), I was unable to move. I therefore left it *in situ* believing that when the congestion of the kidney was lessened the kidney would diminish in size and the stone be less gripped by its pelvic tissues. I packed the wound with iodoform gauze and dressed it with wood wool. During the night the urine drained freely from the wound into the wood wool and owing to the relief of tension 12 ounces of blood-stained urine were passed naturally at one time. She progressed uniformly well without a single drawback, passing urine both by the wound and from the bladder every day. She was given ten grains of salol three times a day, which kept the urine sweet and the wound from irritation. Subsequently urotropine was substituted as the urine became

alkaline. Instead of dressing the wound with wood wool I placed under her loins, cross-wise, an indiarubber bed pan, with air-inflated rim, which collected the draining urine and saved her from becoming wet. On April 8th, I determined to make another attempt to secure the calculus and although it was gripped less tightly I had the greatest difficulty in extracting it on account of its shape and its depth in the ureter, but I was eventually successful. It was pyramidal in shape, somewhat resembling a cocked hat, flat, with an excrescence at one end which became detached (this was mislaid by the nurse). The part that filled the ureter and completely "corked" it weighs 32 grains. On May 23th she was able to be up, a few days later she walked about, and on July 5th she left the hospital in good health but the urine still issuing from the wound in diminishing quantity.

The case is remarkable in that suppression of urine resulted instead of distension of the pelvis of the kidney. There can be no doubt that the secretion of an organ may be arrested by inhibitory nervous action. But how was it the left kidney failed to secrete urine? Is there a similar stone there? Or can a stone in one ureter inhibit the action of both kidneys? I have seen total suppression of urine and death occur from passing a sound for the relief of stricture of the urethra. Also, how was it that there was no uræmia when suppression of urine lasted for 219 hours? The sudden rise of temperature to 108° probably signified its advent, which was, however, forestalled by immediate operation. It would occupy too much of your valuable space to discuss these questions in their entirety. I must be content with recording the facts.

I am, Sirs, yours faithfully,

Rugby, July 7th, 1904. CLEMENT DUKES.

THE TREATMENT OF HÆMORRHOIDS AND ALLIED CONDITIONS BY OSCILLATORY CURRENTS OF HIGH TENSION.

To the Editors of THE LANCET.

SIRS,—In his paper on this subject in THE LANCET of July 2nd, p. 19, Mr. T. J. Bokenham makes the statement that the results of the treatment of hæmorrhoids and other minor troubles of the anus and rectum by high-frequency currents are "far superior to those obtained by any other local treatment short of operation." Judging from the results given in his paper I do not think that any surgeon who has had much experience of rectal surgery will agree with this statement and I do not think it is one which should be allowed to pass unchallenged. It is a well-known fact that minor degrees of hæmorrhoids can often be cured by slightly stretching the sphincters by the occasional passage of bougies and I think the beneficial results obtained by the electrical method described were quite as much due to the slight stretching of the sphincters by the passage of the electrode as to the effects of the high-frequency current.

The treatment of "acute or recent capillary piles" by slightly stretching the sphincters combined with the application of suitable astringents and regulation of the bowels is the ordinary treatment in use at St. Mark's Hospital and it certainly gives much better results than 14 cures in 25 cases, which is the percentage of cures claimed for the electrical treatment, and this without any of the risks of electrical or x-ray burns which Mr. Bokenham admits exist in the treatment by high-frequency currents and which in less experienced hands than his might result in serious damage to the patient. So that, so far as hæmorrhoids are concerned, there does not appear to be any advantage in the treatment by high-frequency currents, but rather the reverse.

With regard to the treatment of simple fissure the electrical treatment certainly seems to have no advantage over the ordinary non-operative methods. The large majority of the cases of simple fissure which come to the out-patient department at St. Mark's Hospital are treated by local applications and are cured in from three to four sittings or even less and this without causing pain or preventing the patients from continuing their ordinary occupations. One would have supposed that the passage of a large electrode into the rectum caused intense pain in cases of fissure, as such patients cannot usually even tolerate an examining finger.

I am, Sirs, your faithfully,

Cavendish-place, July 4th, 1904. P. LOCKHART MUMMERY.

INTRABRONCHIAL INJECTIONS IN PULMONARY DISEASES.

To the Editors of THE LANCET.

SIRS,—As I have largely devoted myself for many years to the development of the treatment of phthisis by direct injections, perhaps I may be allowed to make a few observations on Professor Paul Jacob's communication, referred to by your Berlin correspondent in THE LANCET of July 2nd? With his premisses—"the treatment of tuberculosis by medicine had hitherto failed because of the impossibility [?] of bringing a sufficient quantity of any drug into contact with the diseased parts by ordinary methods of internal administration"—everyone must agree. I recognised it 13 years ago and stated the matter three years later as follows: "To bring the remedial agent into direct contact with the diseased part is a principle so well recognised in surgery that it should require no argument to prove the rationale of extending its application to diseases of the respiratory system."[1]

Having tardily recognised a truism, Professor Jacob appears to have repeated a number of experiments on animals which were reported nearly 20 years ago—to prove the absorbent power of the lungs and that intrapulmonary injections could be performed "without any symptoms of suffocation." The *Practitioner*, vol. xxxvi., *1886*, reports similar experiments performed by Schrward and Reichert, and Professor Sterling recently informed me that it had been demonstrated years ago that a horse's lungs would readily absorb six litres of fluid. It would appear, therefore, that in his preliminary observations and experiments Professor Jacob is somewhat belated. The difficulty of placing fluids in either lung "beyond the bifurcation" of the bronchus was mentioned by me in 1895. I said: "If when the injection is delivered the patient be directed to incline or lie on either side it appears probable that the bulk of the fluid will gravitate in the desired direction."[2] This, however, was insufficient and I now use a revolving chair[3] which Dr. William Ewart thinks "has solved the problem." Cocainisation is quite unnecessary.

Passing the question of the particular drug to be injected I come to Professor Jacob's difficulties which, from the *Deutsche Medicinische Wochenschrift* of June 23rd, are, I gather, as follows: first, as in inhalations the bulk is absorbed by the upper air passages; and secondly, a large quantity of the injected solution is coughed up immediately after the injection. Well, I wish to speak with great respect, but Professor Jacob has treated five human beings—I have treated nearly 200—and as I inject over *one hundredweight* of fluid a year, I think I know, and am in a position to demonstrate, that he is in error.

I am, Sirs, yours faithfully,

Southport, July 12th, 1904. COLIN CAMPBELL.

ROYAL ACCOUCHEMENTS.

To the Editors of THE LANCET.

SIRS,—Dr. W. Williams, in his valuable lectures on Deaths in Childbed, states in THE LANCET of July 9th, p. 65, as follows: "The death of Princess Charlotte of Wales and her unborn son, a death which led to the ascent of the late Queen Victoria to the throne, did much to accentuate this progress [that of men-midwives in public favour] and for the first time in our history a Queen of England was attended in her confinement by a man." In the interests of historical accuracy may I point out that Queen Charlotte Sophia, the consort of George III., was attended by the celebrated Dr. William Hunter. It is true that, in accordance with the custom of those days, Dr. Hunter waited in an anteroom to give his assistance if and when it was needed by the midwife. He was first called to attend the Queen in 1762 when he informed the King, so it is related, that she was "with bairn." An autograph diary of his attendance upon Her Majesty, including three confinements, is preserved in the Hunterian Museum in Glasgow. From the birth of Queen Charlotte's youngest child in 1783 there was no strictly royal birth in England until that of Queen Victoria's eldest child in 1840. In the meantime obstetric physicians had attained to an honourable status and I question whether the term "man-midwife" was applied

[1] Transactions of the Royal Medical and Chirurgical Society, vol. lxxviii., 1894. [2] Ibid.
[3] Described in the Brit. Med. Jour. of Dec. 16th, 1903.

to the leaders in the art much after the middle of the eighteenth century. William Hunter himself, although Horace Walpole calls him in banter "that Scotch nightman," was an M.D., F.R.S., and Foreign Associate of the French Academy, being in fact one of the foremost men in the medical profession in England in his century (see the writer's memoir, "William Hunter, Anatomist, Physician, Obstetrician"). As regards the Princess Charlotte of Wales it is commonly said that her death in 1817 occurred *after giving birth* to a still-born male child.

I am, Sirs, yours faithfully,

Weymouth-street, W., July 13th, 1904. R. HINGSTON FOX.

THE PASSING AWAY OF THE ALL-ROUND INTELLECTUAL GIANT.

To the Editors of THE LANCET.

SIRS,—Time was when the pursuit of scientific research might have been likened to the unravelling of a rope into its strands, whereas now the life of a man seems not long enough to devote special and complete study even to a single strand. The enormous acquisition of facts and the prospect of so many possibilities and probabilities opened up day by day overwhelm the mental and physical capacity of a single individual who therefore finds that he is compelled to resign so much of the task of research to others, confining to himself an apparently small field in which to labour but in which enough material appears for a life-long exploration. The possibility of gaining a general knowledge of natural science grows more remote as revelations are made. Innumerable paths of study are opened up in which, if revelation is to be anything like complete, it is impossible for all to walk. In a word, specialism is compelled upon those who would wrest from Nature her secrets and who would make an attempt to formulate her designs. There is no limitation to study in any given subject. No man will ever be able to sit down and say with a particle of truth, "I have finished the task which at the beginning was placed before me," even though he has "specialised." "Specialising" must eventually lead to the extinction of the "all-round" intellectual giant but the great danger of special study is that the scientific *tout ensemble* may be lost sight of and an inability to comprehend the grand scheme may blight our chances of ever throwing a light on life's great problems. The pieces may be found but who shall fit them in their proper place so that an intelligible whole may be presented? An expert in one subject is very often completely unintelligible to an expert in another subject. Both are engaged in a study of natural phenomena but their individual findings may have no apparent relation to each other. Even in the same denominational class of study one man deviates into a branch of the subject and another man into another and each possesses a special knowledge which cannot be shared. Thus, to take but one example, there are the technical chemist, the "pure" chemist, the analytical chemist, and the pharmaceutical chemist, all well grounded in the principles of that section of science which each has studied, each pursuing a perfectly separate and distinct line and each practically ignorant of the others' gain of knowledge. What chance, again, have such men of gaining any exact knowledge of, let me say, physics or astronomy? The old familiar adage "Jack of all trades, master of none" appears in a new light and its sentiment is very keenly realised in the pursuit of scientific knowledge and in those professions in which such knowledge is indispensable. Giant intellects there are amongst us but owing to the enormous growth of detailed knowledge the "all-round" man must become as extinct as the dodo. The man who thought that he possessed a general knowledge 20 years ago realises with Newton that he has been only like a boy playing on the sea-shore diverting himself in now and then finding a smoother pebble or a prettier shell than ordinary, while the great ocean of truth lay all undiscovered before him. Instances arise now and then of giant intellects comprehending the whole domain of physical science. Such a one was the late Sir George Gabriel Stokes, to whom recently and most deservedly a memorial was placed in our national shrine by the side of those of Newton, Herschel, Darwin, Adams, and Joule, but such instances must necessarily diminish as knowledge spreads.

I am, Sirs, yours faithfully,

July 12th, 1904. CHEMICUS.

CHOLERA IN MESOPOTAMIA AND PERSIA.

(FROM THE BRITISH DELEGATE TO THE OTTOMAN BOARD OF HEALTH.)

DURING the past two weeks there has been a diminution of the cholera outbreak in Turkish territory, but an extension of the disease in Persia. Its presence has also been reported from places on both shores of the Persian Gulf.

The following returns from Basra are in continuation of the figures given in my last letter[1]:—

From June 4th	to June 11th	...	14	cases	and	11	deaths.
,, ,, 12th	,, ,, 18th	...	10	,,		5	,,
,, ,, 19th	,, ,, 25th	...	4	,,		3	,,
,, ,, 26th	,, July 2nd	...	4	,,		4	,,

The outbreak in the Basra lazaret is now at an end. Between May 29th and June 3rd 25 cases and 15 deaths occurred here; in the following week the figures dropped to 12 cases and 8 deaths; there was a single death on the 12th; and finally, on June 21st the husband of a patient already convalescent was attacked by cholera and died. Active measures are in progress for the removal of the lazaret from its present position to a more convenient site on the eastern bank of the river, opposite to the town of Basra.

At Bagdad cholera reappeared on June 4th after an interval of just two months, during which the city was believed to be free from the disease. The following figures have since been reported:—

From June 4th	to June 6th	...	?	cases	...	4	deaths.
,, ,, 8th	,, ,, 11th	...	9	,,	...	8	,,
,, ,, 15th	,, ,, 22nd	...	5	,,	...	2	,,
,, ,, 23rd	,, July 3rd	...	9	,,	...	7	,,

It is probable that these figures are below the truth. On June 21st a case of cholera, which proved fatal next day, developed on board the English gunboat stationed in the Tigris. The ship was consequently removed some distance below Bagdad where she underwent ten days' isolation, thorough disinfection, and repainting.

The outbreak in the Shiah city of Nedjef, the commencement of which was reported in my last letter, proved to be a severe one. After the single cases there on May 24th and 31st a few more cases occurred in the first week of June. But on the 9th of that month the disease became suddenly epidemic, as shown by the following figures:—

On June 9th and 10th	...	...	155	cases	...	93	deaths.
From June 11th	to June 18th...	260	,,	...	297	,,
,, ,, 19th	,, ,, 24th...	67	,,	...	75	,,
,, ,, 25th	,, ,, 29th...	18	,,	...	13	,,

In the other holy city of the Shiahs, Kerbela, the epidemic began rather later, apparently about June 14th. The following are the subsequent returns from Kerbela:—

From June 14th	to June 17th...	3	cases	...	2	deaths.
,, ,, 18th	,, ,, 24th...	122	,,	...	207	,,
,, ,, 25th	,, July 1st ...	27	,,	...	177	,,

The majority of fatal cases here were only discovered after death had occurred.

A severe outbreak of the disease has also occurred at Hilleh, on the Euphrates, in the marshy district between the two Shiah cities just mentioned. For the past two or three weeks, indeed, the centre of intensity of the cholera epidemic has been in this neighbourhood. The following are the returns for Hilleh:—

From June 6th	to June 8th...	5	cases	...	2	deaths.
,, ,, 9th	,, ,, 14th...	116	,,	...	87	,,
,, ,, 15th	,, ,, 24th...	143	,,	...	197	,,
,, ,, 25th	,, ,, 30th...	18	,,	...	36	,,

Smaller figures have been reported from a large number of other places in the Hilleh district. Elsewhere, with the exception of certain tribes in the Montefik district, the reported cholera mortality has been considerably less. But until the past week the infection was present in most of the places mentioned in my former letters and in some others not mentioned there. But fortunately in most the epidemic is now a declining one and the total number of cases and deaths reported from all places within Turkish territory fell from 481 and 252 respectively in the week ending June 28th to 210 and 355 respectively in the week ending July 4th.

[1] THE LANCET, June 25th, p. 1812.

It may be hoped, therefore, that the worst of the epidemic is over on this side of the Persian frontier. But the disease is spreading in Persia and the danger of its passing up to Transcaspia and the Caucasus and so threatening Europe is one that cannot be ignored.

At Khanikin, the Turkish frontier town, only a small number of cases have been officially reported. At Kermanshah, in Persia, the following figures have been returned since the date of my last letter:—

From June 1st to June	8th	...	39	deaths.
,, ,, 9th ,, ,,	15th	...	13	,,
,, ,, 16th ,, ,,	21st	...	59	,,
			(and as many cases).	
,, ,, 22nd ,, ,,	29th	...	49	deaths.

These figures indicate a slight recrudescence of the disease in the second half of June. On the 17th it was announced that cholera had appeared at Koum, a town of importance 24 hours' distance from Teheran, and also in the neighbourhood of Bushire on the Persian Gulf. On July 5th a telegram from Russian sources was published in the newspapers stating that 150 deaths from cholera were occurring daily in Teheran itself. The Turkish sanitary administration has received no confirmation of this announcement. But the fact that cholera is present in the Persian capital is reported, and last week the Ottoman delegate on the Teheran sanitary board was himself attacked by the disease and died after a short illness.

No further news has been received of the reported outbreak of cholera at Bushire but on July 1st the disease was stated to have appeared at Mohamera, the Persian port on the Shatt-el-Arab, a short distance below Basra.

Finally, it has to be added that cholera was reported to have broken out in the Bahrein Islands, near the southern end of the Persian Gulf, in the middle of May; that on June 20th the presence of the disease was reported from two villages (Darein and Narvet) in the district of Katif, on the western shores of the Gulf; that on June 28th a telegram from Basra announced that cholera had been present for a month in Katar (the district south of Katif) and had just appeared in Katif itself and at Dekin (a name I am unable to identify); and that about the same time a few cases of cholera occurred at Muscat and in two villages opposite to this port.

Constantinople, July 8th.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Parsi Maternity Hospital in Bombay.—A New Water-supply for Mussoorie.—The Decline of the Plague Epidemic.—Increase of Enteric Fever at Lahore.—The Health of Bombay City.

THE Parsi Maternity Hospital in Bombay has proved a valuable boon to the community and has gained so highly in popular favour that during the past year very nearly half the number of Parsi children born in the city had their birth in this institution—viz., 529 out of 1168. Some 15 or 20 years ago the mortality amongst Parsi women was enormously high and Dr. B. T. Nariman with others came to the conclusion that certain prevailing customs in the community were largely responsible for it. The hospital was started and has continued to progress ever since. The death-rate of women in the hospital does not come to even ½ per cent., while outside the hospital the death-rate amongst Parsi women is 3 per cent. It is a curious fact that there have always been more births in the institution from July to December than in the first half of the year, but for this there is no explanation. The same proportion of births during the first half and the second half of the year holds true in the case of births outside the hospital. Nearly 20 per cent. of the women admitted were treated and fed free of charge. The patients come not only from the city but from all parts of the provinces and even from distant parts of the country. The hospital saves the lives of children as well as of mothers because it is found that the death-rate among children born outside the hospital is almost double the death-rate in the hospital. Being constructed and managed on modern scientific lines it is an object-lesson for every native community in India.

Following the installation of an improved water-supply at Simla other hill stations are moving in this direction. At Mussoorie the Kimpti Falls are to be made use of and a scheme for electric lighting also by utilising these falls is under consideration. The main reservoir is to be on Blucher's Hill, several hundred feet above the town. From the main reservoir a pipe-line is proposed to be run to the top of Vincent's Hill and another to Camel's Back Hill, the water-supply of Landour being treated separately. The available quantity of water from the springs is given at about 10,000 gallons per hour and the quantity to be pumped will provide water at the rate of 11½ gallons per head. Distribution will be by means of pressure tanks spread over the area with hydrants and also house-to-house supply if required.

The plague epidemic is rapidly on the wane, only 7762 deaths being reported for the whole of India during the week ending June 11th as compared with 13,770 for the previous seven days. The distribution of the mortality is as follows: Punjab, 6491 deaths, as against 12,219 the week previously; Bombay districts, 416, as against 547; Kashmir, 49, as against 81; Rajputana, 55; Mysore, 165; United Provinces, 229, as against 420; Bengal, 133, as against 129; Calcutta, 36, as against 70; Madras Presidency, 71; Karachi, 18; and Bombay city, 74, as against 82. There is danger of a recrudescence at Ootacamund, a few cases having already been reported.

I regret to hear of a considerable increase of enteric fever in the Lahore district during the past few months necessitating the issue of special orders particularly with regard to preventing the spread of the disease by men who are convalescent from it.

The report of the health officer of Bombay for the first quarter of 1904 shows a remarkable improvement on the mortality figures as compared with all the corresponding quarters since 1896. There were 7524 deaths from plague which was almost the only factor in the increase over the normal mortality. The returns have for the last year or two been more satisfactory, inasmuch as the plague returns practically account for the increased mortality, whereas previously the increase was unexplained. The diminished plague mortality may be due to the measures taken, including evacuation, or to an acquired immunity of the people. The health officer asks for a great deal, however, when he says: "If we can evacuate the infected houses, remove all insanitary and plague-stricken areas, provide the people with suitable dwellings, open up insanitary areas, and continue to enforce sanitary measures, we can curtail the course of the disease to controllable limits." If dependence is placed on such Utopian ideals the plague is likely to last some time in Bombay. Overcrowding is the great evil in Bombay city, by which is meant that the number of persons and animals collected together in a certain space, room, or area, workshop, factory, hospital, tent, hut, &c., is so great that it vitiates the air, diminishes vitality, and death and disease result. The health officer complains that the overcrowding has been accentuated by the displacement of many people by the Improvement Trust schemes, that this displaced population has not yet been provided for, and that there are urgent want and demand for cheap dwellings for the poor.

June 24th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

University Matters.

THE following new regulations have been approved for the degree of M.D. and will come into effect after the issue of the next Calendar. Every candidate for the degree will have to present a thesis embodying observations in one of the following subjects: (*a*) anatomy, including comparative anatomy; (*b*) physiology; (*c*) human or comparative pathology; (*d*) bacteriology; (*e*) pharmacology; (*f*) therapeutics; (*g*) medicine; (*h*) mental diseases; (*i*) preventive medicine or public health; (*j*) toxicology; (*k*) legal medicine; and (*l*) midwifery. In addition to this the candidate will be required to pass a general examination in the principles and practice of medicine but it will be in the power of the board of examiners to exempt a candidate whose thesis is of exceptional merit from any part of these examinations. The council has decided to constitute a new grade amongst the members of the junior staff—that of special lecturer. The appointments will be of a personal nature and will not be attached to any department or subject, but will be made on account of special distinction gained in any branch of the department by any

lecturer. The special lecturers will have to take their ordinary share in the work of their departments under the direction of their professors. Two of the first appointed special lecturers belong to the medical faculty—viz., Mr. William Wright, special lecturer on osteology, and Dr. James Miller, special lecturer on bacteriology. At the recent Congregation for the conferring of degrees each of these gentlemen received the degree of doctor of science, which was conferred upon them in respect of theses submitted for the purpose. Dr. James Kerr, medical officer to the late School Board of London, and now the occupant of the same position under the education authority of the London County Council, has been appointed Ingleby lecturer for the year 1905 and will give two lectures during that year on feeble-minded children. Dr. John H. Watson has been appointed second demonstrator of anatomy. The many friends of Professor Gilbert Barling have seen with great pleasure that he heads the list of those elected to fill positions on the Council of the Royal College of Surgeons of England.

Health of Birmingham.

The report of Dr. A. Hill (who held office up to the end of last September) and of Dr. John Robertson (who then succeeded him) on the health of the city for the year 1903 has recently been issued. It states that the year was a remarkable one from the point of view of its healthiness. The death-rate continued low during the whole of the year and "we have now the satisfaction to record that the annual mortality rate was the lowest on record. Indeed, it is probable that the rate during last year was lower than in any year since Birmingham emerged in the distant past from the condition of a village into that of a small town. The mortality-rate was 17·2 per 1000 last year, against 18 in the previous year and 20 in the previous ten years." It is pointed out that this favourable position was largely due to the weather which, by keeping the temperature at a mean, produced a favourable bill of health. The report continues, "It is possible, however, with reasonable cleanliness in our houses, in our food supplies, and in our general surroundings, that warm weather shall not have the same disastrous effects as it has had in past years, and that improved moral and physical qualities resulting from better education and increased prosperity, individual and general, will confer the means of securing greater protection from the dangerous and fatal rigours of the winter season. If we consider the progress made in the health of the city during the 30 years commencing with 1874, when the death-rate was 26·8, and ending with 1903, when the death-rate stood at 17·2, a diminution of 40 per cent., we feel justified in the anticipation that very great benefits are in store for our race in the future." The city contained 111,309 occupied houses, an increase on the 1896 figures of 10,452. The marriages registered in the city were 4881, a rate of 18·4 per 1000. The births were 16,866, or 31·7 per 1000. Only once since 1873 was the birth-rate lower and that was in 1894. The rate for that year was 31·6. The infantile mortality rate was 158 per 1000 births and in this Birmingham has an unenviable prominence, relatively speaking. The serious epidemics during the year were of scarlet fever, though the number of cases was not so high as in 1902, and of diphtheria, of which there was a larger number of cases than in any year since 1896. Out of 251 cases of small-pox there were only 12 deaths. There were 1025 deaths from tuberculous disease and the medical officer recommends the adoption of a system of voluntary notification. He adds that there are in Birmingham at any one time, probably at least 3000 cases of phthisis and alludes to the possible necessity of a corporation sanatorium. The officers of the department represented 304 houses as unfit for habitation during the year. 65 closing orders were obtained, 51 notices of demolition were served, and 34 houses were demolished. In connexion with the milk question the report says: "It is very important that effective and uniform action should be taken in the matter of supervising cowsheds outside the city, from which part of the city milk-supply is drawn. In these rural districts milk is produced under filthy conditions in a good many instances and sent into the city. In summer time such milk is probably one of the means of setting up epidemic diarrhœa among young children." The assistant medical officer of health is at present making an inspection of every milk-shop in the city with a view to drafting some general regulations in regard to their conduct, as it is found that contamination of the supply is probable from the conditions in which the milk is kept in some of these shops. The inspectors condemned during the year 223 tons of bad meat, 93 tons of bad fish, and 17 tons of bad fruit. The 639 city bakehouses include 41 underground, and of these 22 have been voluntarily closed. 14 others have been certified as fit, four were refused certificates, and one case was pending when the report was written. The health visitors made 26,170 visits during the year and the table relating to their work shows that 3935 tenants were advised to open windows, 1109 to get rid of lodgers, 335 to wash their children, and 622 to feed their infants properly.

Small-pox in the District.

Another case of small-pox has been reported to the Birmingham medical officer of health in the person of a man who came from Worcester in an infectious condition, the symptoms of the disease becoming apparent a few days later. The man was removed to the hospital, the house was disinfected, and those who had been known to be in contact with him were placed under inspection. In Worcester there has been an outbreak originating in an inmate of the casual ward of the workhouse. The case was of a mild character. Another inmate of the same ward, who had come there from one of the lodging-houses in the city, has also been discovered to be suffering from the same disease. A malignant case of small-pox has been discovered in the Cannock Chase district, in the person of a man, a native of Stafford, who applied for admission to the Cannock workhouse early one morning, stating that he had been wandering about all night. As it was clear that he was suffering from small-pox the master of the workhouse refused him admittance and he was taken into the small-pox hospital. Previously to coming to Cannock he had slept at a lodging-house in Rugeley. Dr. J. G. Beasley, medical officer of health to the Rowley district council, reported to his authority that a female small-pox patient had escaped from the isolation hospital under the control of the South Staffordshire Joint Small-pox Hospital Board and was, after some days' lapse of time, still at large. The police and workhouse officials for a distance of ten miles round the district had been communicated with but no trace of the woman could be found.

July 12th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Mersey and Irwell Watershed.

IT really seems as if the Mersey and Irwell joint committee was beginning to make some progress and that its efforts for the purification of the rivers and streams of the watershed were not in vain. On July 5th a report was presented by Mr. R. A. Tatton, the chief inspector, which was on the whole encouraging. In commenting on the report, Sir J. T. Hibbert said that the watershed included 95 authorities and had a population of 2,502,000 persons. There are five important rivers in its area, of which the Irwell and the Rouch have 286 manufactories on their banks; the Irk, in old days a noted trout stream, 45; the Medlock, 15; and the Mersey, 98. One serious form of pollution with solid matter, he said, was now a thing of the past, but a few years ago all the cinders and other solid rubbish from the various works were tipped into the streams or placed where the winter floods would wash them from the banks, for the readiest way of getting rid of a nuisance was to pass it on to the neighbour lower down and the gradual silting up of the river-bed was a matter with which the manufacturers did not concern themselves. The sludging of the mill lodges, as the reservoirs for the works are called, was for many years a serious difficulty, but that has been overcome. Serious pollution, however, still takes place when condensing lodges, in which polluted water is used, are run off. Mr. Tatton "mentioned the difficulty that existed with the stone polishing industry," but the solid matter from that source is now intercepted. 12 years ago there were 27 sewage works in urban districts, now there are 86, and ten in rural districts. Now there are only two urban districts without sewage works and both have schemes in hand. In 1891 there were 191 works without any system of dealing with their effluent; now there are only five. 278 manufacturers have now efficient purification plant, as against 45 in 1893. No doubt each of the various industrial processes has its own

difficulties. Of 120 dye works 88 have efficient plants; of 75 bleach works are 56 efficient; of 59 woollen works 44; and of 48 print works 38; while only three out of 12 breweries can claim efficiency. The rivers are now so much less filthy than they were that the water is becoming more useful for manufacturing purposes. Sir John Hibbert is not very sanguine, for he says they can never expect to make the rivers attractive, but "they could make the water of commercial service and they could do much for the health of the people living on the river banks." This is a somewhat melancholy conclusion to come to, for these streams have even yet traces of beauty in quiet reaches, swirling pools, and rippling shallows, the sight of which makes one feel that man should be ashamed to foul everything which he touches. There is said to be "much less decomposition going on in the water of the Ship Canal than formerly, and the formation of gases is nothing like what it once used to be." Let us hope that there will be still further improvement, for it is impossible to imagine, and one would think to endure, anything more malodorous than the summer fragrance of the Ship Canal. Sir Henry Roscoe agreed in the main with Mr. Tatton's report and spoke of the difficulties connected with special trades as, e.g., that of the fellmongers, "owing to the noxious character of the effluent." As to the progress made in the application of scientific methods of filtration he said that in 1898 there were only six and a half acres of artificial filter beds in use in the watershed. There were now 105 acres, while the area for land filtration had only increased from 913 to 1151 acres. The volume of sewage to be filtered, at 75 gallons per head of the population, amounted to 187,500,000 gallons a day. To carry out artificial filtration at the rate of 250,000 gallons per acre, which gives "a satisfactory effluent within the limits of impurity allowable," would require seven and a half times the present area, or 750 acres, which he thought we might look forward to. Land filtration would require some 10,000 acres, which would be out of the question. Manchester possesses half the total area of artificial filters at work in the watershed but they are not sufficient, and the rivers committee is making "praiseworthy efforts" to complete its scheme. As regards the general results, Sir Henry Roscoe said that "the water which previously was unfit for industrial purposes was now usable." There seems to be no sufficient reason for being content with this partial purification of Lancashire rivers and although Sir Henry Roscoe speaks cautiously he says that much more remains to be done.

University Students' Congress.

The first English and Welsh Inter-Universities Students' Congress, to give it its full title, just held in Manchester has had an encouraging success. Its objects were "to promote the general interests of the students and to advance social and academic unity." The universities represented were Birmingham, Cambridge, Durham, Leeds, Liverpool, London, Manchester, Oxford, Wales, and St. David's College, Lampeter, and the delegates numbered about 40. They were welcomed by Dr. Alfred Hopkinson, Vice-Chancellor of the University of Manchester, who was able to say pleasant things all round. He touched on three of the subjects down for discussion, one being the provision of residential halls which he thought of "enormous importance to university life." He next spoke of the question of volunteer corps in connexion with the universities. There was one in connexion with the University of Manchester and "he hoped the movement would grow and that it would be felt to be a desirable thing for members of a university to prepare themselves to take a part, if need be, in the national defence." Professor Schuster proposed a motion on "The Reform of University Degree Courses," which ran as follows:—

> That greater freedom should be given in the degree courses to allow more time for private study and research, and that the best means for securing the additional time required would be found in the abolition in the degree lists of all divisions into classes as the result of examination only.

This was passed after considerable discussion by 23 to 6. Professor Schuster in his reply said that the medical faculty stood on a different footing from the arts, and pointed out that as regarded the University of Manchester the practice on the medical side was very much what he advocated. "No classes were given in the examinations at all except for the M.D. degree, preparation for which was understood to consist of original work." Mr. F. T. H. Davies (Birmingham) proposed a motion in favour of an inter-university volunteer corps. In addition to its importance as regards national defence he spoke of it as tending to companionship and to the obliteration of the division between the faculties of arts and medicine. Mr. William Thorburn related the conditions under which the Owens College company of the 2nd Volunteer Battalion Manchester Regiment, which he commanded until recently, came to be formed. He regretted very much that he had to give up the command of the company, "but the way it had to be conducted in order that it might fit in with the general working of the battalion rendered it impossible for him and also for many of the students to carry on their work." He said that there were many students who would be glad to give a month to work in camp in association with a university battalion, and in that way "they would obtain a training which would be of the greatest value to them in after life in the army, in the Indian Medical service, and in other positions ..... all over the world." He suggested the appointment of a committee to report to the congress next year and it was decided to form a committee of five. There was a strong and apparently unanimous feeling in favour of the movement.

Appointment and Awards at the Victoria University, Manchester.

Dr. A. Hill Griffith has been appointed clinical lecturer in ophthalmology. A Fellowship in sanitary chemistry has been awarded to Dr. W. B. Ramsden. The Dauntesy entrance medical scholarships were awarded to Marion Stocks and A. E. Woodall and the Dumville surgical prize to P. Talbot. Various awards were also made on the arts side.

Scarlet Fever at Warrington.

Scarlet fever has been very prevalent at Warrington. In the first quarter of the year Dr. J. G. Gornall, the medical officer of health, has reported that 232 cases were returned. The average number for the last ten years has been 37. Of the 205 cases removed to hospital eight died, or 3·9 per cent. Dr. Gornall has notified the head teachers of the elementary schools that discharged patients must not be readmitted to school till he has given a certificate that they are fit to return, and this certificate he will not grant for some weeks in any case. The chairman of the health committee commented severely on the action of the education committee in not acceding to the suggestions of Dr. Gornall to close the schools immediately.

July 12th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Coombe Hospital, Dublin.

THE annual meeting of the supporters of the Coombe Lying-in Hospital was held on July 6th, the Lord Mayor being in the chair. When the report had been read Mr. T. G. Stevens, in moving its adoption, alluded to the great increase in the number of patients during the last 12 months and to the increase in the number of students attending the hospital. The Rev. Dr. Smylie seconded the motion and said that the hospital had now risen to a high degree of eminence and usefulness. The Lord Mayor, in putting the motion, remarked that as an old member of the hospitals committee of the corporation he noted with pleasure the improvements that had been made in the buildings and promised that he would recommend his colleagues to give an increased grant to the institution.

Apothecaries' Hall of Ireland.

The annual meeting and dinner of the Apothecaries' Hall of Ireland were held on June 25th, Dr. A. Atock, the governor, being in the chair. Sir Charles Cameron dwelt on the ancient foundation of the institution which dates from the year 1746 and to the charter of 1791 under which it now exists. The governor mentioned that there were over 500 apothecaries on the present roll besides a large number of assistants and said that the diploma of the Hall not only qualified in pharmacy but also conferred the right to practise in medicine and surgery.

Health of Belfast during 1903.

The report (rather a belated one) of Dr. H. Whitaker, superintendent medical officer of health of the city of Belfast, for the year 1903, has just been issued in printed

form. The total number of deaths from all causes has been less numerous (7169) than in any of the past six years, and the deaths from zymotic diseases (792) are also fewer, "a matter for thankfulness," considering that in each of the previous two years the deaths were over 1000. In 1903 there were 2902 cases of infectious disease notified, and attention is called in the report to the fact that this number is smaller, but I fear that the notification of disease is carried out (at least in comparison with any English city) in anything but a complete way. The number of typhoid fever cases notified was only one-third of those notified in 1901. Two of the most serious of the zymotic diseases are not notifiable—measles and whooping-cough—and were very prevalent during the year. There were 11,488 births in Belfast (the population of which is 349,180) in 1903 and 7169 deaths, showing a natural increase in the number of inhabitants of 4319. Of the total number of deaths (7169) during 1903, 792 were due to zymotic diseases and 2675 to chest affections, making a total number of 3467, or rather less than one-half of all the deaths registered as having occurred in Belfast. What is the cause of the deaths of the remaining 3702? It is deplorable to read in this report such a humiliating statement from the health officer as: "I regret that I have no information which would enable me to place before you the causes of death of the other 3702. In most of the other large centres of population the medical officer of health is supplied with this information and with us it could be obtained, as also the names of the streets and numbers of the houses in which the deaths occurred, by arrangement with the registrars of the respective districts. I know nothing of where any deaths take place except from the Registrar-General's returns, which merely state that so many deaths occur in a certain district. As these districts comprise hundreds of acres and thousands of persons, it is impossible for me, even approximately, to state where they occurred." Again, of the 2675 deaths from chest affections, 1030 were attributed to phthisis, while of the remaining 1645 deaths attributed to diseases of the respiratory organs Dr. Whitaker says: "I have no means of estimating the numbers of the different forms of chest affections." How can one criticise a report in which the medical officer of health of a great city like Belfast, with a population of nearly 350,000 people, calmly admits that he cannot get at the causes of the death of 3702 persons and that he is unable to differentiate under their proper heads 1645 cases of death from diseases of the respiratory organs? Truly the state of the science of public health in Belfast is embryonic. Speaking of phthisis it is a remarkable fact (surely needing some explanation) that while in Belfast during the year 1903 one out of every 348 inhabitants died from phthisis, it is said in this report that there were no deaths (p. 29) in the Forster Green Hospital for Consumption and Chest Diseases during that year. Of the deaths from zymotic diseases (792), 293 were from measles (125) and whooping-cough (168). Surely such statistics indicate that such maladies should be made notifiable, while some steps should be taken to prevent 277 deaths from diarrhœa (which is classified under the head zymotic diseases). On p. 5 a table is given showing the number of cases of infectious disease notified as having occurred in the several dispensary districts and nearly six pages are devoted to describing the boundaries and characteristics of these districts, which is absolutely useless, as without a map (which would occupy one page) it is impossible to follow such a description; while more than seven pages are filled with an account of the weather in the various months in relation to the prevailing diseases, and four pages have a list of streets in which typhoid fever occurred in 1903, which is really of no value. The total number of pages of the whole report is 54 and of these I think that those 17 which have been referred to might be entirely omitted as being quite unnecessary. This report is far from satisfactory; it gives the impression that the public health department in Belfast needs great reforming. The medical officer of health makes many most useful suggestions but apparently he gets little support from his committee. Matters are allowed to drift on in an aimless way, no new departure comes as a suggestion from the public health committee; everything needs to be forced on it from the outside; its new infectious diseases hospital will not be ready until Nov. 1st, 1905, and it has still to grapple with the consumption question. The policy of putting off all reforms only ends in disaster and now the citizens of Belfast will have to be taxed heavily for a number of things (infectious diseases hospital, tuberculosis sanatorium, main drainage, &c.) which should have been dealt with one by one and not altogether. In Belfast in public health affairs what is needed is someone who would really guide and direct the public health committee as to those necessary reforms which are pressing and which must be passed if the city is to maintain its high position.

Fermanagh County Infirmary.

Dr. L. Kidd, surgeon to the County Fermanagh Infirmary, has been granted an increase in his salary of £25 per annum. The sum of £119 15*s.* 6*d.*, the result of public subscription, has been expended in furnishing the institution and Mrs. F. Wrench has given as her contribution a bed and mattress worth about £37.

Proposed Sanatorium in Belfast.

The public health committee agreed at its meeting on July 7th to recommend the Belfast city council to erect a sanatorium for 100 consumptive patients with provision for paying patients, the buildings to be of wood or iron on proper foundations. The cost of site, building, &c., will probably be close on £20,000 and the cost per bed per annum will be about £50. It does not recommend that notification of tuberculosis should be adopted as it would, it is said, cost too much money in fees paid to pathologist and medical men (from £700 to £800 per annum). The matter is to be arranged finally at an early meeting of the corporation. That the matter has proceeded so far is really due to the unwearied efforts of Mr. Robert Brown (secretary of the Ulster Society for the Prevention of Tuberculosis) and the decided action of the Local Government Board in pointing out to the public health committee its obvious duty in the matter.

The Cowan-Heron Hospital at Dromore.

At the fourth annual meeting of the supporters of this institution, held on July 7th, it was reported that there were at the beginning of the year 1903 six patients and since then 56 had been admitted—that is, there were 62 patients in all treated during the year. Most of the cases were medical. Mr. W. Cowan-Heron, the generous donor of the hospital, has presented outdoor shelters for patients. The income for the year was £307 18*s.* 3*d.* and the expenditure was £291 0*s.* 8½*d.*, leaving a balance of £16 17*s.* 6½*d.*

The Small-pox Epidemic at Limavady.

At a meeting of the Limavady board of guardians held on July 11th the chairman reported that the last small-pox convalescent was leaving hospital that day.

July 12th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Prevention of Dust on Roads.

AT a meeting of the Academy of Medicine held on June 28th Dr. Guglielminetti of Monaco read an important paper on the application of tar and tar products to roadways. Dr. Guglielminetti has done much to encourage this practice in France. At the present day the tendency is to use not tar itself but westrumite, which is a mixture of the heavy oils of tar emulsified by means of ammonia; a proportion of it, amounting to 5 or 10 per cent., is added to water which is then spread on the roads by an ordinary water-cart. The process is not expensive (12 centimes per square metre) and three or four consecutive waterings appear to produce a lasting effect. Moreover, the use of tar, or rather of tar oils, was attended by two inconveniences which it is hoped will not occur with westrumite. These were (1) that on roads having a gradient of more than 3 in 100 a tarry layer which was slippery for horses formed on the surface and (2) that in order to obtain good results it was necessary to have a succession of fine days and roads perfectly dry and in good condition. For the purpose of making a satisfactory comparison one half of one of the great "avenues" of Paris has been treated with tar and the other half with westrumite. It has already been ascertained that air collected on the surface of ground treated in this way contains exactly half the number of germs found in air collected on the surface of an ordinary road.

Tuberculous Children in the Hyères Sanatorium.

At the same meeting of the Academy of Medicine M. Vidal made a communication from which it appeared that the

proportions of the sexes among the children admitted were 345 girls and 272 boys—i.e., an excess of 73 among the girls. Of these girls 210 suffered from bronchitis and similar conditions and 135 from pulmonary tuberculosis. The girls represented 55 per cent. of the total cases of bronchitis and other affections of the same group, and 57 per cent. of the total cases of pulmonary tuberculosis.

Successful Treatment of Fractured Femur with Metallic Hooks.

At a meeting of the Surgical Society held on June 29th M. Dujarier showed a man, 30 years of age, on whom this method had been used; radiographs taken some before and others after the treatment were also shown. The fracture was at the junction of the upper third and middle third of the femur and there was considerable overlapping of the ends of the bones. After making an incision, completely reducing the fracture and removing a splinter of bone, M. Dujarier united the broken ends of the bone by means of a metallic hook (*agrafe métallique*). The result was perfectly successful, and a radiograph taken two months after the operation showed the two fragments united end to end without the slightest deformity. There was no shortening and the man walked without any limp.

Opotherapy in the Treatment of Cirrhosis of the Liver.

At a meeting of the Therapeutical Society held on June 22nd M. Hirtz showed a patient who had improved considerably under hepatic opotherapy. On admission to hospital he suffered from œdema and pronounced ascites. The liver was small, the spleen was large, and the collateral circulation was well marked. The patient was put on milk diet, to which were added 120 grammes of fresh pig's liver bruised into soup. Four litres of fluid were removed by paracentesis and fluid continued to flow from the wound for several days. The amount of urine rose rapidly from 400 grammes to 2000, 2500, and 3000 grammes, a symptom which was very favourable in respect of prognosis. The œdema and the collateral circulation gradually disappeared and there was no more formation of ascitic fluid. It was well known that the results of this kind of treatment were not always so good as those now described, and up to the present time no means had been found for distinguishing the cases in which opotherapy would succeed.

Resection of the Knee for Bacterial Osteo-arthritis.

At a meeting of the Société de l'Internat des Hôpitaux de Paris held on June 23rd, M. Peraire showed a middle-aged man whose knee-joint he had resected eight years ago for bacterial osteo-arthritis. The patient had previously been treated without any benefit by splints, blisters, and application of tincture of iodine. It was necessary to remove 13 centimetres of bone substance; the result was satisfactory and the patient used a sole of only 8 centimetres in thickness.

Temperature of the Body obtained from the Urine.

M. Mantoux discussed this subject at a meeting of the Société Médicale des Hôpitaux held on July 1st. He has found that in the human subject the taking of temperature in the urine is both easy and more correct than any other procedure used for the purpose except the method by the rectum, all that is required being that the person should micturate on the bulb of a registering thermometer. The differences between temperatures taken in this way and those taken in the rectum very seldom exceeded 0·5° C., and were due either (1) to faulty methods of observation, such as insufficient micturition and imperfect sensibility of the thermometer, or (2) to physiological retardation of the variations of the central temperatures. This retardation depended on the quantity of the urine and on the rapidity with which the central temperature varied. Without being applicable in all cases, the taking of body temperature in the urine might be of real service. By its convenience and accuracy it was specially indicated for use by tuberculous patients who often had to take their temperatures several times a day for long periods. In these patients it would provide a means of avoiding errors due to psychical causes, but, on the other hand, it would give no information as to the sudden and transitory variations in temperature which in some cases followed muscular exercise.

Military Law and Medical Men.

The Chamber of Deputies has been discussing the Military Bill (*Projet de Loi Militaire*) reducing the duration of service in the active army to two years and has agreed to Article 24 which refers to medical students. It provides that medical men and medical students who have kept 12 terms and at the end of their first year of service have passed the examination of *médecin auxiliaire* shall receive this appointment and shall complete their second year of service as *médecins auxiliaires*. The conditions applicable to the medical service of the army are defined by Article 25 which provides that candidates for the medical department of the army (*élèves en médecine du Service de Santé Militaire*) and students of the military veterinary schools bind themselves from the time of entering the schools to serve in the active army for six years at least (dating from the time of leaving the schools) if they have passed the leaving examinations, and for three years at least if they have not passed these examinations. Both classes immediately on leaving the school shall have two years of service with troops on the terms previously set forth in the article. The first category then enter either the École d'Application du Service de Santé Militaire as aides-majors of the first class or the École d'Application de Cavalerie as aides-vétérinaires of the first class. The second category, if before the termination of their engagement they succeed in passing the examinations which admit to the rank of aide-major or aide-vétérinaire, finish their two years of active service with troops under the conditions of Article 24 and then enter at Val-de-Grâce or at Saumur as aides-majors or aides-vétérinaires. Similar regulations are applicable to the students of the Naval School of Medicine.

Chair of Experimental Pathology.

Professor Chantemesse having been at his own request transferred to the chair of hygiene, vacant through the death of Professor Proust, the chair of experimental pathology required to be filled. The council of professors, 33 in number, held a meeting on July 7th for the purpose of considering the list of candidates. Four names were submitted—namely, those of M. Achard, M. Netter, M. Roger, and M. Widal. At the first selection M. Roger and M. Widal each received 10 votes, while 6 were given to M. Netter and 7 to M. Achard. At the second selection M. Roger received 17 votes and M. Widal 13 votes. M. Roger has therefore obtained the first place. He was interne in 1883, took the degree of M.D. in 1887, and became hospital physician (*médecin des hôpitaux*) and *agrégé* in the Paris Faculty of Medicine in 1892. Although only 44 years of age he has already accomplished an extensive and varied amount of scientific work, in addition to which he enjoys an unquestioned celebrity in the scientific world.

July 11th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Symptomatology of Urosepsis.

IN a paper on Urosepsis read by Dr. Ferdinand Kornfeld at a recent meeting of the Gesellschaft der Aerzte he said that the effects produced by urosepsis consisted partly of local symptoms connected with the uropoietic apparatus and partly of general symptoms due to urine poisons circulating in the blood. In clinical work the latter conditions—i.e., those of septic origin—were liable to receive more consideration than the local symptoms. When the general septic phenomena predominated the diagnosis of cryptogenic septicæmia was not unlikely to be made. In addition to abnormal states of the bladder the characteristic symptoms of urosepsis were: (1) "urine fever," which might be isolated and acute, recurring, or chronic; (2) intestinal disturbances; and (3) phenomena of nervous origin. In chronic urosepsis the disease followed a regular course without fever and was marked by serious impairment of the general health with debility and emaciation but without pronounced local symptoms. Cases of isolated cachexia often belonged to this class. The cachexia, when severe, might easily be mistaken for malignant internal disease, especially for carcinoma of the intestine, if gastric-intestinal symptoms happened to be present, such as gastric-dilatation, resistance in the pyloric region, deficiency of free hydrochloric acid, presence of lactic acid, vomiting, and intolerance of solid food. In the circulatory and respiratory system urosepsis might cause cardiac arhythmia and irregularity without anatomical

changes in the valves or myocardium, stases in the circulation, cyanosis, localised pneumonia, and localised atelectasis. In the skin it might cause indurations, infiltrations, phlegmonous ulcerations, erythema nodosum, and purpura hæmorrhagica. Hæmorrhages from the urinary tract were often brought about by the great fluctuations of pressure in the urinary and sanguineo-vascular system. Free intestinal hæmorrhage occurred occasionally. In addition to serious disorders of the central nervous system, hemicrania, tremors, and vertigo might be among the results of urosepsis. Cramps and paralytic seizures were relatively infrequent and only made their appearance in uræmia. In ten cases of symptomatic cachexia in which prostatectomy had been performed a long time previously Trousseau-Erb-Chvostek symptoms were observed. This form of tetany was to be referred to auto-intoxication from the urinary system. Another result of urosepsis was disordered action of the trophic nerves leading to bronzing of the skin, urticaria, abnormal distribution of perspiration, and detachment of the nails.

A New Hospital in Vienna.

On June 20th the foundation stone of a new hospital in Vienna was laid in presence of the Emperor. The old hospital, the celebrated Allgemeines Krankenhaus, was erected in the time of the Emperor Joseph II. and was the seat of a renowned medical school which was founded by Dutch physicians. In this hospital Rokitansky and Skoda worked and made their names famous but in course of time the buildings became out of date and no longer fulfilled the increasing requirements of modern times. The want of laboratories was felt to be a serious obstacle to carrying on scientific work and the accommodation for the patients was defective in several respects. In consequence of this the reputation of the Vienna medical school declined and no German professor accepted a call to Vienna. The desirability of building a modern hospital was suggested several years ago but the scheme has not been realised till now. The site is not far from the old hospital. A long time is certain to be required for the completion of the buildings; it is intended that the gynæcological clinic shall be erected first. The new physiological institute was opened not long ago. It has been built after Exner's plan and is well supplied with electrical apparatus and accessories of all kinds but unfortunately does not devote sufficient space to a very important branch of physiology—namely, physiological chemistry.

Post-graduate Courses.

Two series of post-graduate courses will be held during the summer in Vienna, one of them commencing on August 1st and the other on Sept. 1st. It is expected that many German and American visitors will attend. Any questions about these courses may be directed to the correspondent of THE LANCET.[1]

July 11th.

[1] We will forward such questions to our correspondent.—ED. L.

WATER-SUPPLY OF TEIGNMOUTH.—At the meeting of the Teignmouth (Devon) urban district council held on July 5th it was decided to sign an agreement under which Teignmouth would receive a water-supply from the new waterworks of Paignton at Holme Moor. The chairman remarked that by this agreement Teignmouth would possess a pure and abundant water-supply.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The following prizes were awarded for the summer session 1904:—Barker anatomical prize (£31 10s.), C. Cooper. Mayne scholarship (£15), A. N. Crawford. Carmichael scholarship (£15), J. Prendiville. Gold and silver medals in operative surgery: gold, J. S. Dunne; silver, P. D. Sullivan and J. C. Murphy (equal). Stoney memorial gold medal in anatomy, J. Prendiville. Practical histology: H. C. Carden, first prize (£2) and medal; and D. Adams, second prize (£1) and certificate. Practical chemistry: R. H. F. Taaffe, first prize (£2) and medal; and F. C. Warren, second prize (£1) and certificate. Public health and forensic medicine: M. Cohen, first prize (£2) and medal; and T. H. Massey, second prize (£1) and certificate. Materia medica: F. C. Warren, first prize (£2) and medal; and J. B. Kelly, second prize (£1) and certificate. Biology: J. C. S. Day, first prize (£2) and medal; and T. C. Boyd and H. W. White (equal), second prize (£1) and certificate. The winter session will commence in October.

Obituary.

JOHN BIRKETT, F.R.C.S. ENG.

WITH the death of John Birkett, who had recently entered his ninetieth year, another link between the earlier and middle decades of the last century and the first years of the present has broken. Of the Members of the Royal College of Surgeons of England originally elected to the Fellowship he and his friend and former coadjutor, Sir John Simon, have been for some time past the last survivors. He gained that honour by no favouritism but from the position that he had made for himself amongst his compeers by hard work, careful observation, and strict attention to duty. He was a representative surgeon of the pre-Listerian period, carrying on with such improvements as his own acute observation suggested the principles and practice of surgery as it was taught by the great surgeons of the hospital of which he was for so many years a distinguished ornament. Relying on cleanliness and care and acknowledging the value of rest he appreciated because he had long perceived the value of simple treatment and it was easy for him to graft on his habitual methods the extreme attention to minute details which Lister was the first to inculcate and which has proved of such profound importance in the practice of surgery.

Mr. Birkett was born on April 14th, 1815, at 10, The Terrace, Upper Clapton, Middlesex, then occupied by Mr. Giberne. His father and mother lived in the City at 14, St. Mary Axe. He had the misfortune to lose his mother in infancy, she dying on the ninth day after his birth. His father immediately removed to 1, Lodiges-buildings, Hackney, a house adjoining large nursery gardens that were then well known. Here for five years he was carefully tended by two sisters of his father and was then sent to a school in Hackney kept by a Frenchman named Dumas, where he remained for five years. In the summer and autumn of 1825 he was at a school at Edmonton kept by a mathematician and astronomer, Dr. Firminger. From there he was sent to Mr. Elwell at Hammersmith, where he remained for three and a half years, and finally completed his school life at the establishment of the Rev. Charles Parr Burney who was a Greek scholar of repute. At this school he formed warm and lasting friendships with John Simon, John Ord, Stephen Rigaud (afterwards Bishop of Antigua), and Henry Arthur Herbert of Muckross, Ireland. Before leaving this school, where he remained for two and a half years from January, 1830, to June, 1832, he was bound apprentice in September, 1831, at the Royal College of Surgeons of England to Bransby Blake Cooper who was then surgeon at Guy's Hospital. He was one of the last, if not the very last, of the surgeons' apprentices who paid £500 for the privilege of attending the lectures and surgical practice of Guy's Hospital. He was entered as a student at that hospital on Oct. 1st, 1832, attended the introductory lecture, and was introduced to several of his teachers, amongst whom was Dr. Alfred Swaine Taylor, destined to become the most distinguished medical jurist and toxicologist in England, and who lived up to a comparatively recent date. On Oct. 6th, 1837, Birkett passed his examination as a Member of the College, being examined by Sir Astley Cooper, Sir Anthony Carlisle, and Mr. Guthrie, and at the same time became demonstrator of anatomy in the hospital, having as a colleague James P. Babington.

At Christmas, 1840, he rented 2, Broad-street Buildings and Dr. Babington having resigned Mr. Thomas Moody was associated with him as demonstrator of anatomy, their names appearing for the first time on the list of teachers at the hospital for the session 1841–42. On August 26th, 1844, in recognition of his position and abilities, he was elected Fellow of the Royal College of Surgeons of England by the Council. In 1845–46, Mr. Moody having resigned, he was joined by Alfred Poland, and this year undertook to give demonstrations of the anatomy of the tissues with the microscope, or, as it would be now termed, demonstrations in histology, marking very distinctly the period when the use of the microscope began. In 1847 he continued these demonstrations, resigning the demonstratorship of anatomy, and he was appointed to make the post-mortem examinations.

In May, 1849, he was elected assistant surgeon to Guy's Hospital and in the same month and year was awarded the Jacksonian prize for an essay on Diseases of the Mammary Gland, an extremely well-written and suggestive work which, besides the valuable money consideration of £300, established his position as an accurate clinician and brought him into relation with many leaders of the profession outside the walls of his own hospital. In 1849, in order to be in closer proximity to the hospital, he migrated to Wellington-street, Southwark, on which side of the Thames also his practice was then chiefly situated. In 1851, having previously relinquished the post of demonstrator of morbid anatomy, he commenced the delivery of anatomical lectures with Mr. Hilton. After serving the hospital as assistant surgeon for the short period of four and a half years he was in September, 1853, elected to the much coveted position of surgeon to Guy's Hospital. When Mr. Bransby Cooper became incapacitated by serious indisposition from lecturing on surgery Mr. Birkett delivered his lectures for him. On the death of Bransby Cooper Mr. Cock declined to lecture and the lectureship was offered to Mr. Hilton who, however, preferred to deliver the lectures on anatomy. It was then naturally offered to Mr. Birkett who accepted the appointment and at a month's notice undertook the delivery of a course in conjunction with Mr. Poland and was appointed in association with him one of the lecturers on surgery. In 1856, his practice having increased, he felt himself able to meet the expenses of a residence in the West-end and took a house in Green-street in which he lived for 40 years. He continued to lecture on surgery and to perform the duties of surgeon at Guy's Hospital until April, 1875, when, having attained the age of 60 years, he retired in accordance with the rules of the hospital. In the meanwhile, in 1867, he had been elected a member of the Council of the Royal College of Surgeons of England and retained that office until 1883. In 1869 he was appointed Hunterian professor of surgery and pathology at the College and in that and the following year lectured on the Nature and Treatment of New Growths. He was elected a member of the court of examiners in 1872 and served in that office till 1882. He was an examiner in anatomy and physiology from 1875 to 1877, and examiner on the board of examiners in dental surgery from 1875 to 1882. He served as Vice-President of the College for two years, in 1875 and 1876, and in 1877 he became the President. Having thus gained the highest honours in his profession it only remains to add that for several years he discharged the responsible duties of inspector for the Home Office of the anatomical schools in the provinces and that in the discharge of his duties in that capacity he gave entire satisfaction both to the officials at headquarters and to the teachers of anatomy in the several schools.

Though not a voluminous writer Mr. Birkett published several works which are still referred to by those interested in the special subjects with which they deal. The essay which gained the Jacksonian prize, to which reference has already been made, was issued in 1850 as an octavo volume. He had previously translated Alfred von Behr's "Handbook of Human Anatomy, General, Special, and Topographical," in 1847. A Description of some of the Tumours removed from the Breast and Preserved in the Museum of Guy's Hospital, London; and Contributions to the Practical Surgery of New Growth, or Tumours; and Cysts, were others of his works. He was also for some time editor of the Guy's Hospital Reports. He wrote the article on Hernia and that on Diseases of the Breast in Holmes's "System of Surgery." He was a founder of the Pathological Society of London of which he was a councillor in 1851 and a Vice-President in 1860–62. At the Royal Medical and Chirurgical Society he was secretary during the years 1863–65, on the council in 1867–68, and treasurer from 1870–73. He took an active part in the discussions at these societies and made many communications to both of them which are to be found in their respective Transactions. He was for many years one of the medical referees of the London Life Assurance, while for 40 years he was a member of the Royal Institution, attending the lectures with much assiduity, thus keeping himself *au courant* with modern research. He took a warm interest in the affairs of the Worshipful Company of Ironmongers, to which body he was affiliated in 1842, and after passing through subordinate offices became Master in 1871. He was again elected Master in 1892 and for some time before his death was the "Father of the Company." He had the pleasure of seeing his son, Mr. Percy Birkett, also fill the office of Master.

Mr. Birkett, without any pretension to being a classic or a mathematician—he had been, as we have seen, at too many schools for this—was a man of wide and liberal education and was endowed with powers of keen observation and of impartial judgment. He was not a professed botanist but was familiar with most of our wild flowers and knew the English orchids well, whilst his long association with the Royal Botanic Society and the Regent's Park Gardens, and his frequent visits to Kew made him acquainted with the names and origin of many exotics, the structure of the flowers or leaves of which, especially if of Alpine habitat, with lens in hand he would pore over for an hour or more, taking them home to study and to identify at leisure. His habit of spending his holidays in wanderings on the continent, especially in Switzerland, and of visiting the chief galleries of painting on the continent, together with his excellent memory and his intercourse with various artists, rendered him a good judge of pictures and added to the charm of his conversation and reminiscences of foreign cities. Few men knew better how to use a map. To form one that could be serviceable and easily consulted, even if the walk were no longer than from Sevenoaks to Maidstone or from Midhurst to Haslemere, he would make the starting point the centre by joining two or, if need be, more ordnance survey maps. Then after bevelling the edges that the junction might be almost invisible, colouring the areas of equal height, describing concentric circles increasing in diameter by two or more miles, mounting on linen, and constructing a case no whit inferior to that sold in the map-sellers' shops, he was secure from losing his way in his peregrinations.

The success attending his operations, which was exceptional both in private and in hospital practice, was mainly due to the attention which he paid to the most minute particulars in the dressing of wounds and to the comfort of the patient. In these respects he is said to have been rather a trial of temper to the numerous house surgeons who worked under him. No slipshod bandaging was permitted. Singularly neat and precise himself, he could not endure irregularity, want of consideration, or incapacity in others and spent an inordinate, though from the point of view of a teacher surely not wasted, time in seeing that his directions for the comfort of the patient were carried out in the minutest detail. His large knowledge of diseases of the female breast led him to be consulted frequently both by his colleagues in the hospital and by the public and he was held in high estimation not only for his opinion but for his operative skill. His success would probably have been greater had he not been of a shy and reserved disposition with much of the stateliness and courtesy of the old school but totally lacking in the push and go which would have rendered conspicuous men of far less ability. In full accordance with this it may be remarked that he rather prided himself in carrying on his practice when at its best without burdening himself with the expense of a carriage. He used to maintain that many of the younger men of the present day were too luxurious and that unless they possessed private means it was far more economical and certainly more wholesome to walk than to drive to and from the hospital. Many of the older surgeons and physicians of his earlier years never thought of driving or of being driven to their work. Tall, spare in figure, always neatly and well dressed, and walking with head erect and elastic step, he supported his theory by his practice and enjoyed excellent health to the age of 80 or more.

Of late years there were not wanting signs that the machinery of his body was wearing out. In April, 1902, he suffered from an embolism of his left femoral artery and shortly after lost the vision of his right eye for a few minutes from embolism or spasm of the retinal artery. Perfect recovery took place from the latter condition but a relapse of shorter duration occurred on one if not two occasions. Two months after the occlusion of the femoral artery pulsation in the dorsal artery of the left foot was imperceptible and the foot was cold. His chief ailment was, however, calculus in the pelvis of the kidney on one or both sides which led him to lie in bed during the last two or three years of his life to prevent pain and hæmorrhage. He bore his ailment very patiently, his strength failed, he became unconscious, and passed quietly away in the midst of his family, full of years and well-deserved honours.

Mr. Birkett married in 1842 Lucy Matilda, the daughter of Halsey Jansen, and leaves four sons and a daughter.

WILLIAM ALEXANDER McKEOWN, M.D. R.U.I.

IT is with regret that we announce the death of the well-known Ulster ophthalmologist Dr. W. A. McKeown, which took place suddenly on July 9th from syncope at Newcastle, County Down, his summer residence. He belonged to a medical family, his father being the late Dr McKeown, a well-known medical practitioner of Ballyclare, County Antrim. When a young man he went to Belfast where he at first entered a solicitor's office and having acquired the art of writing shorthand he was for a time engaged in journalistic work. However, his tastes were in another direction and he entered Queen's College, Belfast, as a student of medicine in the session 1865–66. His career there was marked with the greatest distinction; he held a scholarship in his second and third years and a double scholarship (in anatomy and physiology and in therapeutics and pathology) in his fourth year. In 1869 he graduated as M.D. of the Queen's University, being at the same time a gold medallist and first of first honours. He subsequently studied in Dublin, Paris, and London, taking a special interest in ophthalmic work. Returning to Belfast he devoted himself to the eye, ear, and throat as his subjects. Through his exertions the late Mr. George Benn founded the Ulster Eye, Ear, and Throat Hospital in 1871 and in 1874 the new buildings were opened. His work at this hospital soon brought him into marked prominence in Belfast and the North of Ireland, where his name became a household word and his originality and brilliant work attracted attention among ophthalmic surgeons. His first original contribution was in reference to the introduction of the magnet for the removal of particles of iron or steel lodged in the interior of the eye, an accident of frequent occurrence in the numerous manufactories and shipyards in Belfast. Probably, however, it was in connexion with the treatment of cataract that his reputation was established and his name will live in connexion with his operative methods for removing immature cataracts. He was the author of a "Treatise on Unripe Cataract and its Successful Treatment by Operation, with Tables of 152 Cases." At the annual meeting of the British Medical Association in Belfast in 1884, when he was president of the section of ophthalmology, he demonstrated this method, and shortly before his death he had received and accepted an invitation from the ophthalmic surgeons of the Johns Hopkins Hospital at Baltimore to go to America and demonstrate his operation before a congress of American ophthalmic surgeons. His hospital was constantly visited by ophthalmic surgeons from all parts of the world to see his numerous original methods of operative work. He contributed papers to the Clinical Society, Ophthalmological Society, and the various medical journals. He was an ex-president of the Ulster Medical Society and of the Ulster branch of the British Medical Association, and to the meetings of both these medical societies he was constantly sending contributions. In 1896 he was appointed the first lecturer on ophthalmology in Queen's College, Belfast.

Dr. McKeown, while admittedly one of the first ophthalmologists of his time, did not limit his attention to the narrow groove of medical specialism. He was interested in all branches of education. He was elected by the graduates of the Queen's University one of their representatives on the Senate and when the step was taken of destroying that University and replacing it by the existing Royal University he was appointed an original Crown senator, and he constantly used his great influence to advance the interests of the Northern Medical School in Belfast. He entered very strongly into the recent discussions on Irish educational questions, being a very pronounced advocate of non-sectarian education and however much some might differ from him in opinion all acknowledged his great ability, fearless honesty, and intense earnestness. His work in directing attention to the insanitary condition of the primary national schools was of the greatest importance.

Dr. McKeown was a man of great force of character, straightforward, honest, a hater of shams and of all unreality. He was a born fighter, utterly fearless, and if he was in a minority this made no difference—it simply stimulated him to fight the harder. As a result of his great controversial powers and his merciless exposure of all humbug he was both feared and respected. He leaves a widow and one child (a daughter) to deplore his death which took place at the age of 60 years. He was buried in the Belfast city cemetery on July 11th.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Ladislaus Niemilowicz, professor of medical chemistry in the University of Lemberg, at the age of 41 years.—Dr. Victor Cnyrim of Frankfort, whose name is well known in connexion with various questions of hygiene and of medical politics.—Dr. L. de Reynier of Neuenburg, who is described as the Nestor of Swiss medical men, at the age of 95 years.—Dr. Le Roy des Barres, surgeon of the St. Denis Hospital, Paris.—Dr. Joao Pizarro Gabizo, professor of dermatology in the University of Rio de Janeiro.—The *Sviet* announces the death of the Russian Court accoucheur, Ivan Fedorovitsch Maslovski, a scientific gynæcologist, an experienced operator and consulting physician at the Maximilianovski Infirmary, and an active member of the Gynæcological Society.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At the primary examination held recently the following candidates passed in the subjects indicated:—

PART I.

Biology.—I. Pulteney, Royal Free Hospital; and B. R. Shillitoe, University College.
Chemistry.—B. G. Brisco-Owen, Cardiff; and G. F. C. Harvey, London Hospital.
Materia Medica and Pharmacy.—F. M. Cunningham, Royal Free Hospital; C. J. Evans, St. Bartholomew's Hospital; and C. S. Spencer, Manchester.

PART II.

Anatomy.—A. E. Blythman, Charing Cross Hospital; R. B. Dawson, Guy's Hospital; W. P. Pinder, Leeds; S. K. Poole, Guy's Hospital; W. E. N. Smith, Durham; and C. J. Wolfe, Edinburgh.
Physiology.—A. E. Blythman, Charing Cross Hospital; R. B. Dawson, Guy's Hospital; R. J. W. McKane, Leeds; C. J. Wolfe, Edinburgh; and R. P. Wylde, Manchester.

UNIVERSITY OF BIRMINGHAM.—The following is a list of the successful candidates in the Faculty of Medicine:—

I. *Degree of Doctor of Medicine.*—(a) Official: John Douglas Stanley (b) Under Ordinary Regulations: Jordan Lloyd.
II. *Degree of Master of Surgery.*—Official: John Thomas Hewetson and Thomas Wilson.
III. *Degrees of Bachelor of Medicine and Bachelor of Surgery.*—(a) Associate: Alex. Wathen Nuthall. (b) Past students of Birmingham Medical School: Tom William Beazeley, Charles York Flewitt, Sidney Cameron Lawrence, and William Arthur Loxton. (c) Under Ordinary Regulations: Alfred Ernest Remmett Weaver (scholarship), William Cook, Cuthbert Keay Gettings, and Leonard George Joseph Mackey.
IV. *Fourth Examination for the Degrees of M.B., Ch.B.*—Class I.: Norman John Launcelot Rollason (scholarship). Class II.: Robert Wallace Aitken, Reginald Hudson Astbury, Edward Lancelot Bunting, Fred Thomas Hollway Davies, Helen Gertrude Greener, Leonard Leigh Hadley, William Claude Horton, William Cuthbert Houghton, Harold Bruce Jones, Thomas Holmes Ravenhill, Herbert Henry Warren, and Frederick Wilkinson.
V. *Third Examination for the Degrees of M.B., Ch.B.*—Class I.: Frederick Wilkinson (scholarship). Class II.: Robert Wallace Aitken, Reginald Hudson Astbury, John Staines Austin, Edward Lancelot Bunting, Fred Thomas Hollway Davies, Helen Gertrude Greener, Leonard Leigh Hadley, Lionel Chattock Hayes, Arthur Cecil Hincks, William Claude Horton, William Cuthbert Houghton, Harold Bruce Jones, Thomas Holmes Ravenhill, Walter Rowland Southall Roberts, Norman John Launcelot Rollason, Spencer Graham Walker, and Herbert Henry Warren.
VI. *Second Examination for the Degrees of M.B., Ch.B.*—Class II.: John Dale (scholarship), James Fenton, Nevill Coghill Penrose, and David Priestley Smith.
VII. *First Examination for the Degrees of M.B., Ch.B.*—Class II.: John Adams, Charlotte Bailey, Harold Gordon Browning, John Selwyn Edwards, George Henry Chavasse Mold, George Bassett Moon, Arthur McLean Pickup, John Lichtenstein Ritchie, Herbert Henry Sampson, Harold Cairns Terry, Ethel Annie Waldron, and Edward Vernon Whithy.
VIII. *Degree of Bachelor of Dental Surgery.*—Henry Percy Pickerill.
IX. *Diploma in Public Health.*—Parts I. and II.: Thomas Dawson.

CONJOINT EXAMINATIONS IN IRELAND BY THE ROYAL COLLEGE OF PHYSICIANS AND THE ROYAL COLLEGE OF SURGEONS.—The following candidates have passed the first professional examination:—

Honours.—T. C. Boyd, T. P. Cormack, J. C. L. Day, C. Hyland, G. Patton, W. G. Ridgway, A. Sheridan, and H. W. White.
In all Subjects.—G. E. Beggs, G. Collins, J. J. Cuskelly, G. A. Finegan, J. A. J. Flannery, M. J. Hawkshaw, F. N. Holden, D. J. Hurley, H. W. Kay, W. J. P. Lillis, D. J. Lyne, T. J. Lyons, J. McHugh, J. T. McKee, P. Maguire, J. P. Morgan, T. N. Neale, E. Ryan, M. J. Saunders, H. B. Sherlock, J. M. Smyth, C. H. Stringer, and W. C. Townsend.
Completed Examination.—S. W. Hudson and T. J. McDonnell.

FOREIGN UNIVERSITY INTELLIGENCE.—*Lyons:* Dr. Ancel has been appointed *professeur agrégé* of Anatomy, Dr. Neveu Lemaire *professeur agrégé* of Natural History, Dr. P. A. Morel *professeur agrégé* of Chemistry, and Dr. Cnusse *professeur agrégé* of Pharmacy.—*Montpellier:* Dr. E. C. Gyrnfellt has been appointed *professeur agrégé* of Anatomy and Dr. Gagnière *professeur agrégé* of Physics.—*Nancy:* Dr. Laborde has been appointed *professeur agrégé* of Chemistry, Dr. Weber *professeur agrégé* of Anatomy, and Dr. Mathieu *professeur agrégé* of Physiology.—*Paris:* Dr. Branca has been appointed *professeur agrégé* of Anatomy and Dr. Maillard *professeur agrégé* of Chemistry.—*Toulouse:* Dr. Dieulafé has been appointed *professeur agrégé* of Anatomy and Dr. Aloy *professeur agrégé* of Chemistry.—*Tübingen:* Professor Ernst Romberg of Marburg has been appointed Director of the Medical Clinic in succession to Dr. Krehl who goes to Strasburg. Dr. Baisch has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Vienna:* Dr. Anton Bumm, editor of the *Wiener Medicinische Presse*, has been recognised as *privat-docent* of Surgery and Dr. Josef Sorgo as *privat-docent* of Internal Medicine. Dr. August Ritter Vogl v. Fernheim, Professor of Pharmacognosis, is about to retire.

COUNTY OF DURHAM MEDICAL UNION.—The sixth annual meeting of this union was held at the Town Hall, Durham, on June 28th. There was a large attendance of members from the districts of Chester-le-Street, Wingate, West Hartlepool, Durham, South Shields, South Moor, Sunderland, Stanley, Darlington, Crawcrook, Ryton, Willington, Evenwood, Easington, Birtley, West Auckland, Whickham, Low Fell, Washington, Sherburn, Ryhope, Wrekenton, &c. In the absence of the President, Dr. E. Jepson (Durham), Mr. W. Galloway (Wrekenton) was voted to the chair. Dr. Jepson was again re-elected president and Dr. J. Murphy (Sunderland) was re-elected vice-president. The council for the ensuing year was also elected. Messrs. Graham and Shepherd (Sunderland) were re-elected secretaries and solicitors. Votes of condolence were passed to the relatives of the late Dr. C. F. G. Mann (Washington) and Mr. A. W. Attwater (Whickham) who had both been active members of the union. The report of the council for the past year was read and was considered to be very satisfactory. The secretaries of the various local committees and others made verbal reports as to the position of union matters in their respective districts which were also of a satisfactory nature. The question of the National Deposit Friendly Society was again considered and it was resolved, on the motion of Mr. R. Stuart (Durham), seconded by Dr. Johnson (South Moor),

That this meeting pledges itself to adhere rigidly to the resolution passed at a joint meeting of the Durham and Northumberland Unions refusing to recognise the National Deposit Friendly Society in any way and that it further declines to allow its members to sign the certificates of entry for the society.

Dr. Jepson, Dr. Murphy, Dr. J. H. Hunter, and Dr. R. S. Hubbersty were re-elected as the representatives of the union on the judicial committee of the Durham and Northumberland Unions. A discussion afterwards took place in reference to applications from certain miners' lodges for a reduction of the fortnightly subscription and after the matter had been most carefully considered it was unanimously resolved, on the motion of Dr. J. H. Hunter (South Shields), seconded by Mr. E. H. Davis (West Hartlepool),

That this meeting sees no reason to alter the determination of the union previously arrived at that the sum of 9d. per fortnight is the least fortnightly subscription that can be accepted for colliery or family club contract practice.

A hearty vote of thanks to Mr. Galloway for presiding and to Dr. Jepson for his presidency during the year brought to a close a most successful meeting.

TRINITY COLLEGE, DUBLIN.—The following awards were made in Trinity term:—Surgical travelling prize: John S. Joly. FitzPatrick scholarship: James G. Wallis. Medical scholarships: in anatomy and institutes of medicine, Thomas O. Graham (Trinity College) and Francis O'B. Ellison (Stewart); in physics, chemistry, botany, and zoology, Allman J. Powell (Trinity College) and George F. Graham (Stewart). Purser medal: Francis R. Coppinger.

AN OPHTHALMIC INFIRMARY FOR KASAN.—The Kasan local council is taking steps to establish a central ophthalmic hospital to deal with the exceptional number of cases of diseases of the eye occurring in the district and found chiefly amongst the foreign settlers.

DONATIONS AND BEQUESTS.—Mr. and Mrs. John Dyer of Swansea have given a sum of £2000 towards the endowment of the Devon and Dorset Ward of the Swansea General and Eye Hospital.—The Royal Westminster Ophthalmic Hospital has received, under the will of the late Miss Steel, a legacy of £1000.

LONGEVITY.—Mrs. Hannah Coleman of Cleeve, Yatton, Somersetshire, celebrated her 103rd birthday on Feb. 22nd.—Mr. Joseph May, who took the diplomas of M.R.C.S. Eng. and L.S.A. in 1830 and died at Devonport on April 10th, had seen the four Napoleons. The first he saw on board the *Bellerophon* in Plymouth Sound in 1815, the second at Vienna, and the third and fourth—i.e., Napoleon III. and the Prince Imperial—at Mount Edgcumbe Park.

THE LATE MR. A. K. CROSSFIELD.—Mr. Arthur Kyffin Crossfield died at his residence, Newcomen Lodge, Dartmouth, Devon, on July 5th, after a few days' illness from appendicitis. The deceased, who was in his fifty-second year, was the eldest son of the late Mr. R. Crossfield of Douglas, Isle of Man. He received his medical education in Edinburgh and took the qualifications of L.R.C.P., L.R.C.S., L.M. Edin. in 1878. After holding a resident appointment at the Isle of Man General Hospital Mr. Crossfield commenced practice at Dartmouth. He took great interest in the volunteer movement, was surgeon-lieutenant-colonel in the 2nd Devon Royal Garrison Artillery Volunteers, and was shortly to have received the volunteer long service medal. Mr. Crossfield was a justice of the peace for the borough of Clifton-Dartmouth-Hardiness, and at the Dartmouth police-court on July 6th a vote of condolence with his widow and family was passed unanimously.

UNITED HOSPITALS ATHLETICS.—At Stamford-bridge, London, the thirty-eighth annual athletic meeting of the United Hospitals took place on July 9th, when the holders of the challenge shield (St. Bartholomew's Hospital) were beaten by London Hospital, whose representatives, counting ten points for a win and three points for a second, compiled a total of 49 points to 46 by the holders, while Guy's Hospital took third place with 45 points. St. Bartholomew's Hospital was successful in putting the weight, in the mile race, in the three mile race, and in the 100 yards race. The London Hospital was successful in the 220 yards, in the long jump, in the 120 yards hurdles, and in the half-mile race. Guy's Hospital was successful in the high jump, in throwing the hammer, and in the quarter-mile race.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, JULY 6TH.

Police Fees for Medical Services.

MR. ROBERT AMBROSE asked the Home Secretary whether his attention had been called to complaints made by medical practitioners within the metropolitan area of the inadequacy of the fees paid by the police for medical services and the difficulty and expense incurred before obtaining those fees and, if so, whether, in view of the time involved in these police calls, which were generally cases of injury or poisoning, he could arrange that the fees should be increased and should be paid on demand at the local police station from which a medical man was called.—MR. AKERS-DOUGLAS replied: This matter has not yet come before me, but I understand that the Commissioner of Police has received representations with regard to the amount of certain fees paid by the police for medical services and that these representations are now receiving his consideration.

Report of Army Medical Department.

MR. CHARLES HOBHOUSE asked the Secretary of State for War what was the cost of preparing the annual report of the Army Medical Department; at what date the report was generally presented; what was

the cause of the delay in its presentation to Parliament; and whether it would be possible to expedite it in future.—Mr. ARNOLD-FORSTER answered: The cost of the printing and paper of the Army Medical Department report falls upon the Stationery Office Votes. It naturally depends on the size of the report but I have ascertained that the cost of the report recently published may be taken as about £180. The report is generally presented 18 months after the year to which the returns refer. It was explained to the honourable Member last year, in reply to a question, that many of the returns do not reach this country till the late autumn owing to the labour of compilation and that a considerable period is required for the elaboration of the report from these returns. I am afraid, therefore, that it is not practicable to expedite its publication.

THURSDAY, JULY 7TH.

Outdoor Medical Relief.

Sir WALTER FOSTER asked the President of the Local Government Board whether he would take steps to have a report made by the inspector now investigating the arrangements for outdoor medical relief in the metropolis on the number of unions, if any, in which medical relief was granted on loan in the first instance, and on the practice of requiring applicants for medical relief to attend before the board or a committee, with a statement of how long such practice had been in force and its effects on the number of applications.—Mr. LONG said: I will take steps to give effect to this suggestion as far as may be practicable.

Purity of Food.

Sir CUTHBERT QUILTER asked the President of the Local Government Board whether, in pursuance of its powers, the Board proposed to take action on the lines recommended by the Royal Commission on Arsenical Poisoning in Part VIIIa. of its report, by the appointment of a special expert officer or otherwise for securing better control over the purity of chemically prepared, preserved, or other foods liable to contain deleterious substances; and whether progress had been made in giving effect to the further recommendation of the Royal Commission that the principle of officially prescribed food standards already enforced in the case of certain articles of diet should be applied to other foods and beverages.—Mr. LONG replied: I have not at present decided to appoint a special expert officer of the kind referred to. The consideration of the recommendations of the Royal Commission is being proceeded with, and in connexion with it the proposal with regard to the appointment of such an officer will receive attention. Effect, however, could not be given to the recommendations as to food standards without legislation.

THE SELECT COMMITTEE ON THE REGISTRATION OF NURSES.

The Select Committee of the House of Commons appointed to consider the expediency of providing for the registration of nurses has now commenced its sittings under the chairmanship of Mr. H. J. TENNANT. On Thursday, July 7th,

Dr. BEDFORD FENWICK gave evidence. He pointed out that at present there was no uniformity in the training of nurses and that the public had no means of discriminating between the good and bad, efficient and inefficient. Unless a nurse possessed technical knowledge she was unable to carry out efficiently the duties intrusted to her by the medical man and she was unable to report to the medical man what particular symptoms the patient had shown during his absence. A large number of those who were following the profession of nursing were unable to take the pulse and temperature properly. He would not have separate classes of medical, surgical, and obstetric nurses; every nurse should, in his opinion, have a general knowledge of these three branches and she might afterwards specialise on that basis. There were over 80,000 women who were engaged in nursing in the United Kingdom and he estimated that at least 40,000 had not had any adequate training. He considered it essential that Parliament should pass legislation to secure some uniform training and to prevent the great danger that now existed from the want of control. He did not think that there was any fear of opposition from the nurses to examination and registration because these would raise the status of nursing.

When the Committee met on Tuesday, July 12th, the evidence of Miss Isla Stewart and Miss Margaret Huxley was heard. Miss STEWART said that she was matron of St. Bartholomew's Hospital. At present no uniformity existed in the training of nurses, each hospital having its own standard and length of training. There ought to be a certain number of years fixed and there ought also to be an examination to prove that the nurse had benefited by her training. There was a difference in the methods of St. Bartholomew's Hospital as compared with St. Thomas's Hospital. Some system of registration such as that suggested in the two Bills introduced into the House of Commons would supply the deficiencies in uniformity which she desired to see remedied. Some sort of general council should be set up to examine nurses and to grant them certificates. The council should be composed principally of medical men and nurses but she saw no objection to laymen being represented. There might be difficulties in administration such as the cancelling of certificates for offences, but those could be overcome. Probationers were at present examined in the making of splints, making beds, their knowledge of mixing lotions for standard bottles, their knowledge of instruments, and bandaging. They were also examined in hot and cold applications, the making of poultices, the application of steam, hypodermic injections, keeping charts, and so on. She did not see why it should not be possible to obtain uniformity of examination. The attendance on the sick must be more or less the same in any hospital.

The CHAIRMAN: You would not be content with certificates from certain hospitals being approved by a central council?

Miss STEWART: I think it would be very difficult to draw the line as to what hospitals you would include. I would prefer to have the examinations carried out by one class of people.

Sir JOHN BATTY TUKE: How could such a body as that arrive at a conclusion as to what is the more important part of a nurse's qualities—her moral aptitude for the work?

Miss STEWART: That would be a question for the hospital at which she is trained.

The CHAIRMAN: What advantage would be gained from examination by a central board as against certification by the great hospitals?

Miss STEWART: I think it would prove whether all the hospitals were training their nurses sufficiently and efficiently. It would be possible, she continued, to devise examinations sufficiently varied from time to time so as to test proficiency. Elementary physiology would be one subject. Questioned by Sir JOHN BATTY TUKE, she added that this would include the bones, the position of the viscera, the main arteries, the alimentary canal, digestion, and a general elementary knowledge of the functions. A nurse ought not to work in a hospital less than three years. If she were two years in an eye and throat hospital, for instance, she ought at least to have served one year in a general hospital. Her desire was not to make examinations more severe than they were at present in the good hospitals. Probationers usually commenced at the age of 23 years but in a few hospitals they commenced earlier. At St. Bartholomew's the limit of age was now 35 years. She did not see why 21 years should not be a limit for the granting of a certificate, although she admitted that age to be young. The public ran the risk of getting an improperly trained nurse very frequently owing to the want of uniformity. Examination by a central board would allow the public to ascertain whether they were getting fully trained nurses. It would also be an advantage to the fully trained nurse if a distinction were drawn between her and the partially qualified nurse who competed with her. The ideal they were aiming at was that there should be set up a general council with power to examine and to certify but that that should in no way interfere with the existing training that went on in the great hospitals. In answering further questions she said she believed that the employment of incompetent nurses prevailed to a very great extent.

Miss HUXLEY said that she was formerly matron of Sir Patrick Dun's Hospital, Dublin. She thoroughly agreed with the previous witness as to the necessity for uniformity in training and examination. In Sir Patrick Dun's Hospital it was the custom to bind a probationer for four years. Two years were spent in the wards and during that time the nurse received education in anatomy, physiology, hygiene, invalid cookery, and the ordinary nursing of the wards. At the end of two years she was required to go out private nursing and earned a certain amount of money for the hospital. On more than one occasion when a nurse wished to join the army nurses she had been told that she was ineligible because she had not worked three years in the hospital. She mentioned this as showing that great disappointment was caused through want of uniform practice. If a general council were to lay down the length and term of training and the form of education all nurses would have a fair start, one not being better off than another simply because she happened to be in a particular place. Want of uniformity caused great injustice. She supported generally the evidence given by Miss Stewart.

The Committee afterwards adjourned.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

AUBIN, EMILE DUPONT, M.R.C.S., L.R.C.P. Lond., has been appointed Port Health Officer for the Port of Thames, N.Z.

BARTLETT, R. C., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory Act for the Romsey District of the County of Hants.

BUSHNELL, F. G., M.D. Lond., D.P.H. Cantab., has been appointed Pathologist to the Sussex County Hospital.

COLLINS, WILLIAM EDWARD, M.B. Lond., M.R.C.S., has been appointed a Member of the Senate of the New Zealand University.

HAY, JOSEPH FRANK STRONG, M.B., C.M. Aberd., has been appointed an Inspector of Lunatic Asylums, Hospitals, and Licensed Houses in the Colony of New Zealand.

JOHNSTON, HENRY M., B.A., M.B., has been appointed Chief Demonstrator of Anatomy in Trinity College, Dublin.

MENZIES, PERCY WILLIAM, L.R.C.P., L.R.C.S. Edin., has been appointed Public Vaccinator for Ohaeawai, N.Z.

PORTER, ALBERT HARDING, L.R.C.S., L.R.C.P. Edin., has been appointed Public Vaccinator for Waihi, N.Z.

REED, WALTER HUGO, M.R.C.S. Eng., L.S.A. Lond., has been re-appointed Medical Officer of Health for the Westbury (Wiltshire) Rural District Council.

SYMONS, WILLIAM HENRY, M.D. Brux., L.R.C.P. Lond., M.R.C.S., L.S.A., D.P.H. Oxon and Durh., has been re-appointed Medical Officer of Health for Bath.

TAYLOR, GERARD C., M.D. Cantab., D.P.H., has been appointed Medical Officer of Health of the Urban District of Finchley.

WALKER, H. J., M.B., M.S. Edin., has been appointed Certifying Surgeon under the Factory Act for the Brighton District of the County of Sussex.

ZIMPEL, ADOLPH, M.B., Ch.M. Aberd., has been appointed Public Vaccinator for Ormondville and Norsewood, N.Z.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYR DISTRICT ASYLUM.—Assistant Medical Officer, unmarried. Salary £120, with board, apartments, attendance, and washing.

BETHLEM HOSPITAL.—Two Resident House Physicians (unmarried). Honorarium at rate of £25 each per quarter, with board and residence.

BIRKENHEAD BOROUGH HOSPITAL.—Junior Resident House Surgeon. Salary £80 and fees.

BRIGHTON THROAT AND EAR HOSPITAL, Church-street, Queen's-road.—Non-Resident House Surgeon for six months, renewable. Salary at rate of £75 per annum.

CARLISLE NON-PROVIDENT DISPENSARY.—Resident Medical Officer. Salary £150, with apartments, attendance, &c.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Two House Physicians for six months. Salary at rate of £30 per annum, with board and residence.

DORCHESTER, DORSET COUNTY HOSPITAL.—House Surgeon, unmarried. Salary £100, with board and residence.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—House Surgeon. Salary £50 per annum, with board and washing.

GORDON HOSPITAL FOR FISTULA, &c., Vauxhall Bridge-road, S.W.—House Surgeon. Honorarium £15 15s. for six months or £40 for 12 months, with board and residence.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway.—Junior House Surgeon. Salary at rate of £30 per annum, with board, lodging, and washing. Also Pathologist. Salary 50 guineas per annum.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician, also House Surgeon, both for six months, and unmarried. Salary in each case £20, with board and residence. Also Surgeon Dentist.

LIVERPOOL TOXTETH PARK WORKHOUSE AND INFIRMARY.—Resident Medical Officer. Salary £100 per annum, with board, washing, and apartments.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Soho-square, W.—Honorary X-ray Specialist.

NOTTINGHAMSHIRE CONSUMPTION SANATORIUM, Mansfield.—Resident Medical Officer. Salary £100 per annum, with board, lodging, and washing.

ST. THOMAS'S HOSPITAL.—Casualty Officer for six months. Salary at rate of £100 per annum, with board and residence.

SOUTH UIST PARISH.—Medical Officer and Public Vaccinator. Salary £77 10s.

STIRLING DISTRICT ASYLUM, Larbert, N.B.—Assistant Medical Officer. Salary £150, with board, &c.

STOCKPORT INFIRMARY.—House Surgeon. Salary £100 per annum, with board, washing, and residence.

VICTORIA UNIVERSITY OF MANCHESTER.—Junior Demonstrator in Physiology.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Junior House Surgeon. Salary £50 per annum, with board, lodging, washing, and attendance.

WEST SUSSEX, COMBINED SANITARY DISTRICT.—Medical Officer of Health. Salary £650 per annum.

WALLINGFORD BERKSHIRE ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £140, rising to £160, with board, apartments, attendance, &c.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

WORCESTER GENERAL INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

Births, Marriages, and Deaths.

BIRTHS.

DIXON.—On July 12th, at Lynwood, Haven Green, Ealing, the wife of R. Halstead Dixon, M.B. Lond., M.R.C.S., L.R.C.P., of twin daughters.

WILLIAMSON.—On July 9th, the wife of Charles F. Williamson, M.R.C.S.E., L.R.C.P. Lond., L.S.A. Lond., of a son.

MARRIAGES.

ELLIOTT—DOWNING.—On July 9th, at St. Stephen's Church, Lewisham, Arthur Forbes Elliott, M.B., B.C. Cantab., to Mable Katharine, only daughter of Arthur Matthew Weld Downing, F.R.S.

NICHOLSON—RAPER.—On July 9th, at the parish church of Battle, Sussex, Surgeon Charles Rowley Nicholson, R.N., to Christine Mary Frances, eldest daughter of W. Augustus Raper, of Battle.

SMYTH—WATTS.—On July 11th, at Christ Church, Worthing, by the Rev. F. D. Sturgess, vicar of Yiewsley, and the Rev. Canon Holme, of Chester, James Arthur Smyth, M.B., second son of Hugh Smyth, Esq., of Hill Crest, New Barnet, to Louisa Margaret, elder daughter of Captain James S. Watts, R.N., Worthing.

DEATHS

CROSSFIELD.—On July 5th, at his residence, Newcomen Lodge, Dartmouth, after a few days' illness, Arthur Kyffin Crossfield, aged 51 (eldest son of the late Robert Crossfield, of Oak Hill, Douglas, Isle of Man), L.R.C.P. Edin., L.R.C.S. Edin., and L.M., a Justice of the Peace for the Borough of Clifton, Dartmouth Hardness, and Surgeon-Lieutenant-Colonel 2nd Devon R.G.A.(V.).

MANN.—On the 13th of May, at Kisumu, British East Africa, Harold E. Mann, M.R.C.S., L.R.C.P., D.P.H., Medical Officer, East Africa Protectorate, son of the late Major-General Gother F. Mann, C.B., R.E., and of Mrs. Gother Mann, Seldown, Hamilton-road, Boscombe, aged 39.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE ANATOMIST'S HYMN.

WE feel pleasure in congratulating Dr. Donald MacAlister on his graceful German version of the "Anatomist's Hymn" by Oliver Wendell Holmes. The original English and the German translation are published in the June number of the *Eagle*, the magazine of St. John's College, Cambridge, from which we quote three stanzas (the second, the third, and the last) in both languages, with the permission of the editor:—

* * * * *

"The smooth soft air with pulse-like waves
Flows murmuring through its hidden caves,
Whose streams of brightening purple rush
Fired with a new and livelier blush;
While all their burden of decay
The ebbing current steals away,
And red with Nature's flame they start
From the warm fountains of the heart.

"No rest that throbbing slave may ask,
For ever quivering o'er his task,
While far and wide a crimson jet
Leaps forth to fill the woven net,
Which in unnumbered crossing tides
The flood of burning life divides;
Then kindling each decaying part
Creeps back to find the throbbing heart.

* * * * *

"O Father! grant Thy love divine
To make these mystic temples Thine!
When wasting age and wearying strife
Have sapp'd the leaning walls of life,
When darkness gathers over all,
And the last tottering pillars fall,
Take the poor dust Thy mercy warms
And mould it into heavenly forms!"

"Sacht und gelinde die Luft, in wechselwogenden Zügen,
Leise murmelnd durchrinnt heimliche Höhlen der Brust;
Dabei hellen sich auf die purpurfarbenen Ströme,
Reger rauschen sie hin, glühen zu reinerem Rot;
Ebbet ihr Lauf wieder ab, so trägt er unmerklich von dannen
Alles, was hemmt und beschwert, alles Verfallene weg.
Rosig, wie innig erwärmt am Herde selber des Lebens,
Heiss, aus des Herzens Born, quellen sie nochmals hervor.

"Nimmer ist Ruhe vergönnt dem klopfenden Herzen, dem Sklaven,
Emsig erfüllt er die Pflicht, zucket und pochet sofort.
Unablässig heraus entsprudeln die rötlichen Strahlen,
In das geflochtene Netz stürzen sie jählings hinein;
Kreuz und quer überall, durch seine unzähligen Rinnen,
Rasch zerteilt sich der Fluss, spendet belebende Glut;
Endlich, wenn er gelabt die erschlafften verfallenen Teile,
Heimwärts schleicht er, und sucht wieder das schlagende Herz.

* * * * * * *

"Du allmächtiger Vater! Erteile die göttliche Liebe
Diesem mystischen Bau, dass er der Deinige sei!
Wenn das verzehrende Alter, in Bund mit erschlaffendem Streben,
Schleichend der Lebenskraft wankenden Wall untergräbt—
Wenn sich das finstre Gewölk weithin über Alles verbreitet,
Pfeiler um Pfeiler erbebt, stürzt bis zum letzten zu Grund—
Nimm den dürftigen Staub, den Deine Gnade beseelte,
Bilde zu neuer Gestalt himmlischer Anmut ihn um!"

The elegiac distich employed in the translation is quite unlike the metre of the original. In German this metre is abundantly used, notably by Goethe and Schiller, but it seems to be ill-adapted for English poetry. The rhythm is excellently expressed in the following identical English and German couplets:—

"In the hexameter rises the fountain's silvery column,
In the pentameter aye falling in melody back."

Otherwise—

"Im Hexameter steigt des Springquells flüssige Säule,
Im Pentameter dann fällt sie melodisch herab."

Dr. MacAlister many years ago gave the medical profession a proof of his familiarity with the German language when he made his excellent translation of Ziegler's Pathology. But to translate a manual, however technical the subject and elaborate the treatment, requires a different form of literary skill than that which is demanded for the accurate rendering of imaginative and beautiful verse into a foreign tongue. Of all languages German is, perhaps, the one that the foreigner thinks that he will find simplest to write correctly because of the many hard-and-fast rules of construction and arrangement, but the successful rendering of English into German is not often accomplished by our countrymen. We congratulate Dr. MacAlister upon his elegant feat.

TREATMENT OF PUBLIC WATER-SUPPLIES WITH COPPER SULPHATE.

THE *Engineer* of July 8th states that the United States Department of Agriculture is experimenting with a process of treating public water-supply with a solution of copper sulphate—1 part in 1,000,000 parts. The purpose of this is to destroy certain forms of algæ or plant growths which so frequently render water foul and ill-smelling; although the sanitary quality of the water is not affected the appearance, smell, and taste are such as to cause great complaint from consumers. These growths flourish best in the purest waters passed through sand filters and for this reason large storage of filtered water is not advisable unless the reservoirs are to be covered over. As to the effect upon the consumers, a person drinking three pints of water per day, with 1 part to 1,000,000 parts, would in a year have consumed only seven to eight grains of the sulphate. As a matter of fact, however, the treatment would not be continuous; two or three applications a year would probably suffice and besides this the sulphate would enter into combination with the organic life and be thus precipitated. Certain of the algæ are killed by solutions of only 1 part in 3,000,000 parts but it is possible that others will require much stronger solutions. In this case, which remains to be determined by test, the reservoir may be shut off from use during treatment or there may be a supplementary process to precipitate any copper sulphate remaining in solution.

MOTOR BICYCLES FOR MEDICAL MEN.

Beginner writes: "Will any medical man who has used a motor bicycle during winter months for professional work kindly advise if such is trustworthy in a hilly country district when the roads are heavy and the weather is rough, if it is possible to dispense entirely with a horse under such conditions, and how, if so, to keep clean and dry when visiting better-class patients?"

THE EYRE TESTIMONIAL FUND.

THE following subscriptions to the above fund have been received. Contributions may be sent to Dr. J. H. Bryant, Guy's Hospital, S.E.

	£	s.	d.
Sir Thomas Stevenson...	3	3	0
Dr. L. E. Shaw	3	3	0
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Mr. R. Clement Lucas...	3	3	0
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Mr. S. E. Denyer, C.M.G.	1	1	0
Professor R. Howden ...	1	1	0
Dr. A. Newsholme ...	1	1	0
Dr. H. S. French	0	10	6
Dr. J. Pickett	0	10	6
Dr. H. Barber	0	10	6
Dr. A. J. Cleveland ...	0	10	6
Mr. A. Allport	0	10	6
Mr. A. R. F. Evershed	0	10	6
Dr. E. E. B. Landon ...	0	10	6

COFFEE-LEAF CIGARETTES.

To the Editors of THE LANCET.

SIRS,—Can any of your readers tell me the name of a coffee-leaf cigarette which, when smoked, causes a dislike to tobacco cigarettes, and where they can be obtained?

I am, Sirs, yours faithfully,

July 11th, 1904. CASTLETON.

POST-GRADUATE COURSES.

OUR correspondent should consult the Students' Number of THE LANCET (Sept. 5th, 1903), p. 729, for particulars regarding post-graduate instruction which is given throughout the year at various hospitals.

THE INHABITED HOUSE DUTY REPEAL ASSOCIATION.

WE have received a visit from a representative of the committee of this association who has pointed out that a paragraph which appeared in THE LANCET of July 2nd might leave the impression upon our readers that the association was some sort of bogus or fraudulent affair. We did not intend to convey this impression, although we must confess we were not so well aware of the work of the association as we might have been considering the service that it has been to medical men. It may be remembered that the association obtained the assessment of consulting rooms used by medical men who resided elsewhere as business premises.

PICTURE POSTCARDS AND CHARITY.

THE *Daily Express* of July 7th contains the following interesting paragraph relating to this subject:—

> One would have thought that the possibilities of the pictorial postcard had been exhausted. There is no question about its popularity, for hundreds of thousands of specimens are bought weekly in this country alone. But the editor of *Pearson's Weekly* has discovered a new use for them and has set them to charitable purposes. First of all a collection was made of all those cards on which appeared the photographs of well-known men and women, and these celebrities were then written to asking if they would kindly sign a few which might be sold in aid of the Fresh Air Fund. The response was surprising. Hardly a refusal came to hand. The result is that *Pearson's Weekly* announces in to-day's issue a list of autograph postcards which is quite novel. Among those who have signed postcards are the following: the Duke of Norfolk, Right Hon. A. J. Balfour, Right Hon. Joseph Chamberlain, Madame Melba, Rudyard Kipling, Sir A. Conan Doyle.

Here follow the names of 34 other distinguished persons who have likewise signed postcards. We congratulate the editor of *Pearson's Weekly* on his ingenious application of the picture postcard. We believe, however, that in the employment of these postcards for charitable purposes the Assistance Publique in Paris led the way, as announced in THE LANCET of Feb. 6th last, p. 402, subsequently to the appearance of a letter in THE LANCET of Dec. 12th, 1903, p. 1699, in which a scheme to benefit hospitals through the sale of picture postcards was outlined.

CHILD-STUDY.

To the Editors of THE LANCET.

SIRS,—In reply to your correspondent "Child-Study" in THE LANCET of July 2nd may I recommend to him the following books? Most of the literature on child-study is American. (1) Physical Nature of the Child, by Rowe; (2) Fundamentals of Child-Study, by Kirkpatrick; (3) The Study of Children, by Dr. Francis Warner (all published by Macmillan and Co.); (4) The Child, in Dent's Temple Primers; (5) The Child, by A. F. Chamberlin in Contemporary Science Series (Walter Scott); and (6) The Medical Inspection of School Children, by Leslie Mackenzie (Bell and Bradfute, Edinburgh).

I am, Sirs, yours faithfully,

W. H. COUPLAND.

Royal Albert Asylum, Lancaster, July 7th, 1904.

Beta.—There are no absolute rules. The medical officer of health should in every possible instance, to quote the words of the Local Government Board, "act in harmony with the medical attendants of the sick so as to obtain from them the valuable assistance which they can afford to him in his work." Circumstances may occur in which the medical officer of health feels it his duty to order disinfection of a patient or his immediate removal to an isolation hospital or the disinfection of premises; in such a case the medical officer of health should inform the medical practitioner of his action as soon as possible. The points raised by our correspondent and many others of a like nature were fully discussed in a series of articles entitled "Difficulties under the Infectious Diseases Notification Act," published in THE LANCET of 1895, which can be obtained in pamphlet form, price 6*d.* (by post 6½*d.*), on application to the publisher.

Lac.—The report of the Departmental Committee on Food Preservatives was issued in November, 1901, and although that is nearly three years ago absolutely nothing has been done and this country is still without the necessary statutory powers to control the practice of preserving foods. Briefly, the committee recommended that the use of any preservative or colouring matter whatever in milk should be counted an offence under the Sale of Food and Drugs Acts. In cream 0·25 per cent. of boric acid was suggested as permissible and in butter 0·5 per cent. Formaldehyde was forbidden altogether and salicylic acid was not to be used in greater proportion than one grain per pint of liquid food or one grain per pound of solid food.

R. S.—It is difficult to give a detailed answer on the information supplied. Many cases of eczema do badly at any sea-side place and with reference to the case of the child the locality is very cold and unsuitable for pulmonary cases between February and May. Our correspondent had better send a fuller account of the condition of his cases to one of the local practitioners who would doubtless supply him with the information which he seeks.

R. G. J.—1. The student must either be content with the double qualification, M.R.C.S., L.R.C.P., or attend at the University as required. 2. There are so many pocket diaries of the kind required by our correspondent that we cannot undertake to make distinctions between them. 3. There are no such books, so far as we know; the facts of anatomy can only be learned and remembered by dint of steady application and dissection.

G. W., Birmingham.—On the information before us we consider that the consultant should have refused to act with Dr. B. without previously informing our correspondent. A patient has a perfect right to change his medical attendant, but the newly called in practitioner should insist upon the former attendant being informed of the change and this Dr. B. apparently failed to do.

R. H.—(1) We have no information; and (2) the best form of a "draft" balance-sheet we have seen is that given in Affleck's "Guide to the Income Tax Law and Practice," which was reproduced in THE LANCET

of July 4th, 1896. This number of THE LANCET is now out of print, but the book (price 5s.) can probably be still obtained from the publisher, 72, Market-street, Manchester.

Monitor.—Radam's microbe killer, according to an analysis which we made a few years ago, consisted of a weak solution in water of sulphurous acid gas with traces of sulphuric acid.

Mr. J. W. Draper.—We cannot answer our correspondent's question for the reply must depend upon the regulations of the particular medical school which he may select.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (18th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.).

WEDNESDAY (20th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.) Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

THURSDAY (21st).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.).

SATURDAY (23rd).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (18th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. R. Dore: Clinique. (Skin.)

ST. PETER'S HOSPITAL (Henrietta-street, Covent Garden).—3.30 P.M. Mr. R. Harrison: Cases in the Wards.

TUESDAY (19th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. E. Squire: Clinique. (Medical.)

WEDNESDAY (20th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Smith: Clinique. (Surgical.)

THURSDAY (21st).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.)

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (7, Fitzroy-square, W.).—5 P.M. Dr. H. Scharlieb: The Administration of Anæsthetics in Affections of the Respiratory System.

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Dr. Still: Infantile Syphilis.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Mr. A. de Prenderville: On Anæsthetic Difficulties, General and Special.

ST. PETER'S HOSPITAL (Henrietta-street, Covent Garden).—3.30 P.M. Mr. J. Pardoe: Electric Illumination of the Urethra and Bladder (Urethroscopy, Cystoscopy).

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1904, which was completed with the issue of June 25th, and the Title-page to the Volume, were given in THE LANCET of July 2nd.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1904 are now ready. Bound in cloth, gilt lettered, price 12*s.*, carriage extra.

Cases for binding the half year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

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Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, MR. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 14th, 1904.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
July 8	30·20	S.W.	...	120	81	61	61	65	Hazy
„ 9	30·23	E.	...	124	84	62	63	69	Fine
„ 10	30·21	E.	...	126	81	61	62	68	Fine
„ 11	30·12	S.E.	...	124	78	59	63	68	Fine
„ 12	30·00	S.E.	...	122	78	59	62	70	Fine
„ 13	30·13	W.	0·02	127	79	60	62	68	Fine
„ 14	30·10	S.W.	...	126	77	62	61	70	Cloudy

During the week marked copies of the following newspapers have been received:—*The Star, Hertfordshire Mercury, Windsor and Eton Express, Standard, South Wales Daily News, Walsall Advertiser, Surrey Advertiser, Coventry Herald, Birmingham Daily Mail, Reading Mercury, Mining Journal, Local Government Chronicle, Liverpool Courier, Westminster Gazette, Pall Mall Gazette, Daily News, Irish Times, Nottingham Guardian, Aberdeen Free Press (Weekly),* &c.

Communications, Letters, &c., have been received from—

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